Regional Solid Waste Management Plan for Southeastern Virginia 2020 - 2025

Prepared on behalf of the:

SOUTHEASTERN PUBLIC SERVICE AUTHORITY OF VIRGINIA

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EXECUTIVE SUMMARY

The **Regional Solid Waste Management Plan for Southeastern Virginia (RSWMP)** provides an overview and analysis of solid waste management in the Cities of Chesapeake, Franklin, Norfolk, Portsmouth, Suffolk and Virginia Beach, the Counties of Isle of Wight and Southampton, and the Towns of Boykins, Branchville, Capron, Courtland, Ivor, Newsoms, Smithfield and Windsor. As required by the state regulations, the RSWMP presents background information on population and development patterns in southeastern Virginia, providing the context in which solid waste management occurs in the region. It also provides an inventory and projection of current solid waste management programs and current and future solid waste quantities generated in the region and the characteristics of those wastes. Finally, it discusses and presents available options for meeting the long-term solid waste management needs of the region in the form of a series of goals and objectives and an implementation plan.

The structure of the RSWMP is as follows:

Chapter 1.0 - Introduction. This chapter provides a history of solid waste management planning in Southeastern Virginia and a description of the planning area. Information is included on the regional transportation system, land use patterns, economic development and markets for recycling.

Chapter 2.0 - Existing Solid Waste Management System. This chapter presents regional solid waste generation quantities and disposal statistics, and the various solid waste processing, recycling, and disposal facilities in the planning area. In addition, a synopsis of solid waste handling practices is provided for each of the cities and counties in the planning area. This chapter also addresses the pending cessation of operation of the WIN Waste (formerly known as Wheelabrator Portsmouth) facility at the end of June 2024 and decommissioning and demolition of the power generating facility and RDF facility.

Chapter 3.0 - Special Wastes. This chapter addresses the management of additional waste streams generated in the Region such as medical waste and construction and demolition debris.

Chapter 4.0 - Waste Management Summary. This chapter provides a summary of the existing waste management system in the region and an overview of the future of solid waste management based on the proposed closure of the WIN Waste facility~~sale of the RDF plant~~.

Chapter 5.0 - Future Solid Waste Management Needs. This chapter presents projections and characterization of the future solid waste stream for the planning area. National trends are presented and solid waste generation is provided by locality. Existing landfill and transfer station capacity is analyzed in light of the projections and the need for additional landfill disposal capacity is presented.

Chapter 6.0 - Recycling Rate. This chapter summarizes the mandatory state recycling rate and a historic overview of regional recycling performance.

Chapter 7.0 - Litter Control. This chapter summarizes existing litter control programs in the Region.

Chapter 8.0 - Solid Waste Needs Assessment. This chapter discusses the waste management hierarchy as it relates to regional solid waste management practices. The hierarchy includes source reduction, reuse, recycling, resource recovery, incineration and land filling. This chapter includes a summary of current conditions and an overview of potential actions for consideration.

Chapter 9.0 - Implementation Plan. This chapter presents an implementation plan for options selected during the planning process. This Chapter also includes a discussion of public/private partnerships and financing.

Chapter 10.0 - Public Participation. This chapter discusses opportunities for public participation at SPSA board meetings, various public education programs and media events.

Chapter 11.0 - RSWMP Amendment Procedures. This chapter provides an overview of the procedures to amend the RSWMP.

1.0 INTRODUCTION

The **Regional Solid Waste Management Plan for Southeastern Virginia (RSWMP)** provides a guide for the short and long-term management of the solid waste system within the planning area. This Plan documents the existing solid waste management programs and facilities, describes the opportunities for improvement to the existing system, evaluates alternatives and recommends programs and facilities which will achieve the region's goals, and describes the strategy for implementing the recommended programs. This Plan's 20-year planning period is through 2040.

The format of this Plan is as follows:

- Section 1: Introduction and Background of the Planning Area
- Section 2: Existing Solid Waste Management System
- Section 3: Special Waste
- Section 4: Waste Management Summary
- Section 5: Future Municipal Solid Waste Management Needs
- Section 6: Recycling Rate
- Section 7: Litter Control
- Section 8: Solid Waste Needs Assessment
- Section 9: Implementation Plan
- Section 10: Public Participation
- Section 11: Plan Amendment Procedures

As required by the regulations, this Plan presents background information on population and development patterns in southeastern Virginia, while providing the context in which solid waste management occurs in the region. It also provides an inventory and projection of current solid waste management programs and current and future solid waste quantities generated in the region and the characteristics of those wastes. Finally, it discusses and presents available options for meeting the long-term solid waste management needs of the region in the form of a series of goals and objectives and an implementation plan.

1.1 SOLID WASTE MANAGEMENT PLANNING IN SOUTHEASTERN VIRGINIA

1.1.1 Historical Perspective

Southeastern Virginia has a long history of cooperation and innovation in solid waste management. Beginning in the early 1970s, the Region's eight cities and counties recognized the need to develop alternative solid waste management approaches. A regional study process was instituted under the auspices of the Southeastern Virginia Planning District Commission (SVPDC) to examine technological and institutional approaches to management of the region's solid waste. This effort culminated in the identification of a regional waste-to-energy project as a viable solution to this issue and the establishment of the Southeastern Public Service Authority (SPSA) of Virginia as the entity to implement the proposed regional system. Startup of the

regional system occurred in 1985 with development of the Regional Landfill. The Refuse Derived Fuel and Waste to Energy Facility (RDF WTE Facility) began operation in 1988 as part of SPSA's waste-to-energy system. The search for additional management options preceded the startup date and is continuing.

Concurrent with the creation of a regional solid waste management system, the two regional agencies and the member local governments examined other aspects of the regional solid waste management issue and developed approaches to dealing with its various aspects. Studies have been undertaken and regional programs implemented in the areas of hazardous waste management and recycling. The local governments have instituted innovations in the collection system (e.g. automated collection), have undertaken components of the regional recycling program, and have implemented measures to better control environmental contaminants, such as landfill gas and leachate, at their own disposal facilities.

In 1989, the Virginia General Assembly enacted legislation requiring that localities, or regional agencies on behalf of the localities, prepare solid waste management plans. These plans were to focus on how the locality or region would achieve recycling goals. Regulations to implement this legislation and to outline common procedures for preparation of these plans were developed by the Virginia Department of Waste Management (VDWM). They were promulgated and became effective on May 15, 1990.

The SVPDC and SPSA acted jointly in March 1990, in accordance with these regulations, to recommend that the boundaries of the Southeastern Virginia Planning District should be designated as the solid waste planning region; that the SVPDC should be responsible for developing the solid waste management plan; and that SPSA should be designated as the Regional Solid Waste Management Agency and charged with implementation of the regional solid waste management plan. The VDWM formally concurred with these recommendations on February 20, 1991. Following the creation of the Hampton Roads Planning District Commission (HRPDC) by the merger of the Southeastern Virginia and Peninsula Planning District Commissions, the HRPDC became the agency responsible for preparing the solid waste management plan. In addition, the VDWM no longer exists and the authority for administering the solid waste management regulations now rests with the Virginia Department of Environmental Quality (VDEQ).

In 1991, the HRPDC, in cooperation with SPSA and its member local governments completed the RSWMP for Southeastern Virginia, which was approved by the VDWM. On August 1, 2001, the regulations were amended to require that solid waste management plans be developed or amended to conform to new plan requirements. To comply with the amended regulations, the RSWMP was revised and adopted by the HRPDC and SPSA in 2005. At that time, it is understood that SPSA accepted responsibility for making future updates to the RSWMP as needed. However, in March 2010, the local governments designated the HRPDC as the regional solid waste planning agency while SPSA remains the regional solid waste management agency. This revised solid waste management plan has been prepared by the HRPDC in cooperation with SPSA and the member local governments to meet the requirements of the Virginia "Solid Waste Planning and Recycling Regulations" (9 VAC § 20-130-10 et seq.). It builds upon the previous solid waste management planning efforts in southeastern Virginia and establishes a framework

by which this region can meet the state-mandated planning requirements and recycling goals as well as the long-term waste management needs of this region.

1.1.2 SPSA Goals and Objectives

The SPSA Board of Directors and staff annually adopt a Strategic Operating Plan to address the future of solid waste management functions performed by SPSA in the Region for its member communities~~,~~ and define guiding principles for the organization.

The Strategic Operating Plan includes SPSA's:

- **Mission:** To provide an efficient and responsible waste management system for its member communities.
- ~~**Core** **Purpose:**~~ Management of safe and environmentally sound disposal of regional waste.
- **Vision**~~**Philosophy:**~~ To be the gold standard leader in innovative waste management and landfill operations. ~~SPSA will be a service-oriented, quality-focused organization that continually seeks improvement and cost-effectiveness.~~
- ~~**Cores** **Values:**~~ Community Stewardship, Convenience, Dependability, Environmental Stewardship, Fiscal Responsibility, Pride. ~~Integrity, Excellence, Accountability, Cooperation, Teamwork.~~
- **Core Business.** Create, manage, and maintain an infrastructure for the disposal of regional waste, including through the operation and management of the regional landfill and all transfer stations and other delivery points, and provide for the transportation of waste.
- **Guiding Principles:** The Strategic Operating Plan, including a detailed statement of SPSA's guiding principles, are available at https://www.spsa.com/about-spsa/reports-publications.

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1.2 SOLID WASTE MANAGEMENT PLAN REQUIREMENTS

The laws of Virginia mandate the development and adoption of a solid waste management plan by all local governments in the Commonwealth. To facilitate regional coordination of solid waste services, rather than develop an individual plan for each locality, the law allows local governments within a designated region to develop one plan for the region. HRPDC and SPSA are coordinating the development of the solid waste management plan for the local governments in southeastern Virginia.

Under state solid waste planning regulations, no permit for a new sanitary landfill, incinerator, or waste-to-energy facility or for an expansion of an existing sanitary landfill, incinerator, or waste-

to-energy facility will be issued until the solid waste planning unit within which the facility is located has developed a solid waste management plan that has been approved by the Virginia Department of Environmental Quality (VDEQ). Regulations governing the development and submittal of solid waste management plans are provided in 9 VAC 20-130-10 et seq.

In addition, the solid waste management plan must be considered in the permitting process in three ways. First, VDEQ must review a proposed solid waste management facility for its consistency with the solid waste management plan. Second, permit applicants must certify that sufficient disposal capacity will be available to allow local governments in the region to comply with the solid waste management plan. Finally, VDEQ may impose permit conditions to allow local governments to contract and reserve disposal capacity in the new facility in accordance with the solid waste management plan.

The solid waste management plan must address six policy areas specified in state law. These six policy areas include:

1. Source Reduction
2. Reuse
3. Recycling
4. Resource Recovery (Waste to Energy)
5. Incineration
6. Landfilling

The plan must give preference to lower numbered policy areas over higher numbered policy areas. These policy areas are based upon the widely accepted waste management hierarchy, originally conceived by the U.S. Environmental Protection Agency and embodied in the Virginia Solid Waste Management Regulations. The hierarchy encourages communities to develop policies that rank the most environmentally sound strategies for management of solid waste (see Figure 1):

- First, Reduce and Reuse – Efforts to prevent the creation of waste should precede other waste management options that deal with the waste after it is generated, as in recycling. The underlying thought is that solid waste that is not produced does not require management.

- Second, Recycle and Compost – This level includes recycling and composting. These techniques have the potential to divert large amounts of waste from disposal and turn them into valuable products. Through these techniques, waste materials can potentially go through several cycles of use, conserving raw materials and energy in the process.

- Third, Recover Energy – This level of the hierarchy also uses waste as a resource, but essentially the material can only be used once. The highest use becomes energy production.

- Finally, Dispose – After the first levels of the hierarchy are maximized, there may be residual solid waste left to manage. This material must be disposed of in an

environmentally safe manner, through incineration or landfilling at a permitted facility.

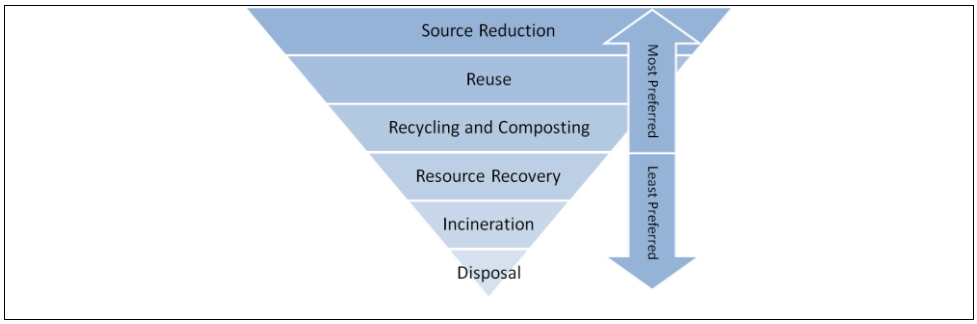

Figure 1. Waste Management Hierarchy

In addition to addressing these policy areas, the plan must provide an integrated waste management strategy with objectives and an implementation plan. The plan must also address achieving the established minimum recycling rate, funding, strategies for public education and public involvement, and public-private partnerships.

The strategies of the solid waste management plan must be supported by descriptions and analysis of urban development, population, transportation system condition, and waste generation estimates in the planning area. Further, the plan must develop future estimates of waste generation and present how the region anticipates meeting future solid waste needs. This plan addresses all of the regulatory requirements and serves as the solid waste management plan for the communities of southeastern Virginia.

1.3 DESCRIPTION OF PLANNING AREA

SPSA is the regional solid waste management organization for eight southeastern Virginia communities with a total land area of nearly 2,000 square miles and a population of ~~1,195,613~~1,205,287 (Weldon Cooper, ~~2019~~2022). The SPSA member localities are the cities of Chesapeake, Franklin, Norfolk, Portsmouth, Suffolk, and Virginia Beach, and the Counties of Isle of Wight and Southampton. Additional localities covered by this plan are the towns within Isle of Wight and Southampton Counties, including the following: Smithfield and Windsor in Isle of Wight County and Branchville, Boykins, Capron, Courtland, Ivor, and Newsoms in Southampton County. With the exception of Franklin and Southampton County, the SPSA communities are a part of the Norfolk-Virginia Beach-Newport News Metropolitan Statistical Area. Figure 2 illustrates the SPSA service area.

The SPSA area is bordered to the north by the James River and the Chesapeake Bay, with the Atlantic Ocean to the east. To the south is the North Carolina state line, while the Virginia Counties of Greensville, Sussex, and Surry border the region to the west.

The SPSA service area is located in the coastal plain of Virginia. The region is blessed with numerous waterways and wetlands, including the Elizabeth, Lynnhaven, Nansemond, Pagan, North Landing, Blackwater, Nottoway, and Meherrin Rivers, the Great Dismal Swamp, Back Bay, and the Intracoastal Waterway.

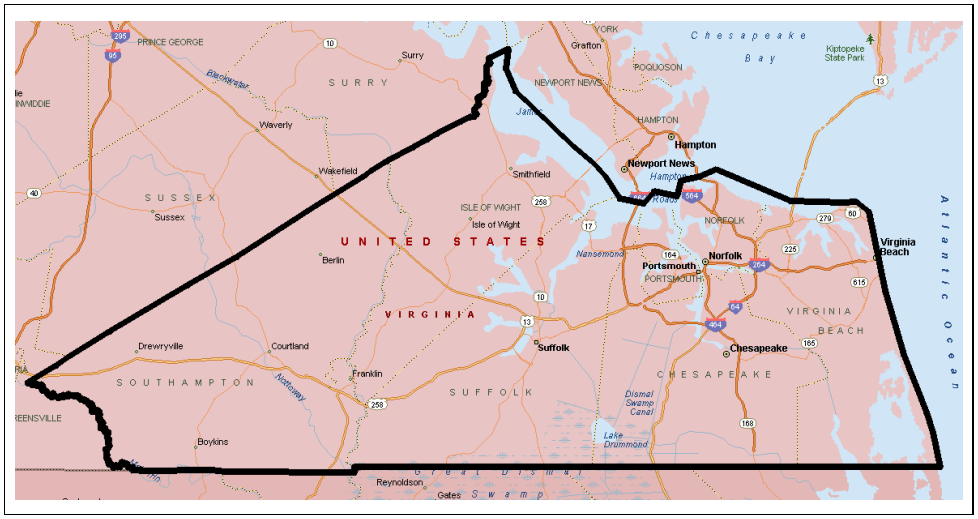

Figure 2. SPSA Service Area

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1.3.1 Transportation

The location and topography of the SPSA planning area makes its transportation system unique. Due to the vast number of waterways in the planning area, bridges and tunnels are vital components of the surface transportation system. Four major bridges and tunnels serve major geographic areas of the region: the Hampton Roads Bridge-Tunnel, the Monitor-Merrimac Memorial Bridge Tunnel, the Downtown Tunnel, and the Midtown Tunnel. Other major bridges in the area include the Berkley Bridge, the High Rise Bridge, and the James River Bridge. These bridges and tunnels are significant traffic congestion points. The major interstates in the area consist of I-64 and I-664, which collectively serve as the beltway for the region; I-264 connecting Chesapeake, Portsmouth, Norfolk and Virginia Beach from west to east; and I-464 connecting the cities of Chesapeake and Norfolk. Significant U.S. Routes in the area include U.S. 13, 17, 58, and 460.

Transportation congestion is a major issue in the Region. The collection, transfer, and disposal of solid waste make extensive use of the road transportation network. Transportation to and from the Region is controlled in large part by the various tunnels and bridges that connect to the West and North. The HRPDC has focused much effort over the last several years to facilitate approaches to solving the Region's most vexing transportation problems, and these problems are

not easy to solve. According to studies conducted by the HRPDC, travel growth has outpaced roadway capacity improvements in the Region. The Hampton Roads Bridge Tunnel (HRBT), the Monitor-Merrimac Memorial -Bridge Tunnel (MMMBT), the Downtown Tunnel, the Midtown Tunnel and the "Highrise" Bridge are major system constraints, and congestion is routinely evident on all the Region's interstates, affecting the movement of people, goods and services. The constraints imposed by the Region's roadway network affect the planning, siting, implementation, and operation of the Region's solid waste system in the following ways.

- **Collection Efficiency.** Solid waste is collected by public and private operations in the Region. Traffic congestion affects the efficiency of these collection operations. Travel time from collection routes to transfer stations, the Regional Landfill, or the RDF WTE facility are extended during congestion periods, which means that the per day collection rate of each collection vehicle is reduced, more collection vehicles are needed to service collection routes, and overall operational costs are increased.

- **Collection and Transfer Scheduling.** Collection routes and transfer station operations are routinely scheduled to avoid peak congestion periods; however, this is not always practical, and these operations are negatively affected during congestion periods.

- **Location of Facilities.** The Region's current solid waste system is transportation intensive. The Region's transfer station, landfill, and RDF WTE facilities are the primary delivery points for solid waste disposal involving a significant number of collection and transfer vehicles. The capacity of the road networks to and from these facilities and any future facilities is an important consideration.

All solid waste in the Region is collected and transferred by public or private collection vehicles and equipment. Currently, no solid waste is transported to or from the Region by rail or barge, although previous proposals for barging in out-of-state waste have been considered, but ultimately rejected for various political reasons.

1.3.2 Urban Concentration

Within the Region, urban development is primarily concentrated within the beltway formed by the loop of I-64 and I-664 and to the area east of the beltway. Thus, the majority of urban development is concentrated in the cities of Norfolk and Portsmouth and in northern Virginia Beach and Chesapeake. This area contains more than three-quarters of the planning area's population and also the vast majority of the area's employment.

Waste transfer stations in the Region are located to serve existing areas of urban development. Five of the nine existing transfer stations are located in the area within the beltway and northern Virginia Beach and Chesapeake. The location of future transfer stations will need to take into account forecasted growth within the region. Further discussion of future needs can be found in Chapter 5.0, Hierarchy and Implementation.

1.3.3 Economic Growth and Development

Economic forecasts by the HRPDC indicate expected future economic growth and development for the SPSA planning area. In 20222019, the member jurisdictions of SPSA had an estimated total population of 1,195,6131,205,287. The largest city in the Region is Virginia Beach, followed by Chesapeake and Norfolk.

Population change since 2010 is shown in Table 1. Overall, the Region has experienced growth from 2010 to 20192021. However, some jurisdictions experienced a decline in population during this period.

From 2020 to 20450, the Region is expected to grow nearly 17 8 percent to 1,445,300302,086 people. This equates to an average annual growth rate of 0.780.33% or approximately 10,3733,926 people per year. Suffolk and Isle of Wight are projected to experience the greatest increase in total population (on a percentage basis). The population growth rate is significant for planning purposes since the amount of waste generated increases as population increases.

Projections about population growth, regional employment, and number of households can help define what kinds and amounts of waste the Region will generate. A brief summary of projections for other key planning variables is presented here:

- **Employment:** Employment is expected to increase at an average annual rate of about 0.88 percent through 2040, resulting in an overall increase of over 19 percent from 2020 (Table 3). Employment is projected to increase in each locality. Isle of Wight County is projected to experience the greatest percentage growth in employment followed by Southampton County and Suffolk. Employment is an important forecasting variable because growth reflects an increase in economic activity, which in turn leads to increased consumption and waste generation.

- **Households:** The number of households in the region is expected to increase by about 18 percent from 2020 to 2040 at an average annual rate of 0.84 percent. The largest percentage expansion in population and households is forecasted for the City of Suffolk and Isle of Wight County. Generally, each home, regardless of the number of residents, contributes a certain amount of waste such as junk mail and yard waste.

Table 1. SPSA Population 2010 1 - 2021 16

	20110	20172015	20182016	20192017	20202018	20212019	Growth (20110-20211 9)
Chesapeake	225,361222,209	242,655238,283	243,868240,485	245,745242,655	249,422243,868	250,256245,745	111%
Franklin	8,4458,582	8,4748,535	8,3088,597	8,2618,474	8,1808,308	8,0648,261	-54%
Norfolk	243,655242,803	246,256247,189	245,741247,087	245,054246,256	238,005245,741	238,102245,054	-21%
Portsmouth	95,74895,535	95,44096,874	94,95396,179	94,58195,440	97,91594,953	97,88394,581	2 1%
Suffolk	84,75084,585	92,53390,426	92,71491,722	93,82592,533	94,32492,714	96,13093,825	131%
Virginia Beach	442,583437,994	454,448453,500	453,410453,628	452,643454,448	459,470453,410	458,028452,643	33%
Isle of Wight	35,29635,270	37,33336,438	37,49237,074	37,64937,333	38,60637,492	38,94437,649	107%

Southampton	18,638~~18,570~~	18,119~~18,551~~	17,851~~18,242~~	17,855~~18,119~~	17,996~~17,851~~	17,880~~17,855~~	-4%
Total	1,145,548	1,195,258~~1,189,796~~	1,194,337~~1,193,014~~	1,195,613~~1,195,258~~	1,203,918~~1,194,337~~	1,205,287~~1,195,613~~	4~~4~~%

Sources: 2021~~10~~ Census - U.S. Census Bureau and Population Estimates from the Weldon Cooper Center for Public Service

Table 2. SPSA Estimated Population Growth by Community

	2010 Census	2020 Population Projection	2030 Population Projection	2040 Population Projection	Average Annual Growth Rate (2020-2040)
Chesapeake	222,209	249,513	280,173	314,600	1.17%
Franklin	8,582	9,265	10,003	10,800	0.77%
Norfolk	242,803	246,220	249,686	253,200	0.14%
Portsmouth	95,535	96,415	97,304	98,200	0.09%
Suffolk	84,585	109,339	141,337	182,700	2.60%
Virginia Beach	437,994	456,993	476,817	497,500	0.43%
Isle of Wight	35,270	42,749	51,813	62,800	1.94%
Southampton	18,570	20,641	22,942	25,500	1.06%
Total	1,145,548	1,237,832	1,330,075	1,445,300	0.78%

Sources: 2020-2040 Population Projection - HRPDC

Table 3. SPSA Employment Projections, 2020 - 2040

	2010 Census	2020 Projection	2030 Projection	2040 Projection	Average Annual Change (2020 – 2040)
Chesapeake	122,265	135,656	150,515	167,000	1.04%
Franklin	6,182	6,874	7,644	8,500	1.07%
Norfolk	210,037	217,801	225,852	234,200	0.36%
Portsmouth	57,414	61,452	65,774	70,400	0.68%
Suffolk	33,914	41,668	51,195	62,900	2.08%
Virginia Beach	240,070	261,901	285,718	311,700	0.87%
Isle of Wight	15,347	19,400	24,523	31,000	2.37%
Southampton	5,454	6828	8,547	10,700	2.27%
Total	690,683	751,580	819,768	896,400	0.88%

Sources: 2020-2040 Projection - HRPDC

SPSA Household Projections, 2020 - 2040

	2010 Census	2020 Projection	2030 Projection	2040 Projection	Average Annual Change (2020 – 2040)
Chesapeake	79,574	89,783	101,303	114,300	1.21%
Franklin	3,530	3,828	4,150	4,500	0.81%
Norfolk	86,485	88,125	89,797	91,500	0.19%
Portsmouth	37,324	37,777	38,236	38,700	0.12%
Suffolk	30,868	40,125	52,158	67,800	2.66%
Virginia Beach	165,089	172,764	180,795	189,200	0.46%
Isle of Wight	13,718	16,689	20,303	24,700	1.98%
Southampton	6,719	7,541	8,464	9,500	1.16%
Total	423,307	456,632	495,206	540,200	0.84%

Sources: 2020-2040 Projection - HRPDC

2.0 EXISTING SOLID WASTE MANAGEMENT SYSTEM

Solid waste generated in the planning area is managed through a combination of services and service providers. Generally, municipal solid waste is collected by local governments and private haulers and is taken to either a SPSA transfer station or to WIN Waste Portsmouth facility (formerly known as Wheelabrator~~Wheelabrator~~'s RDF WTE Facility)~~(~~Portsmouth~~)~~. The collection of MSW from single-family homes has remained the responsibility of the local governments. Each locality handles its collection systems differently, although almost all are on a weekly/automated system. Some localities also serve multi-family residences and small commercial businesses. WIN Waste Portsmouth has notified SPSA that it will continue to operate through June 2024, and following, it will close the facility and proceed with decommissioning and demolition of the power generating facility and RDF facility.

All localities in the region provide recycling services. SPSA continues to operate regional programs for white goods recycling (including Freon extraction), household hazardous waste, tire processing, used oil collection, and battery recycling.

2.1 RECYCLING PROGRAMS

2.1.1 Municipal Recycling Programs

Recycling in the region consists primarily of curbside recycling and drop-off locations:

- Chesapeake had contracted ~~contracts~~ for its curbside recycling services. The service ~~is~~ provided on an every-other week schedule using a 96-gallon container. With the implementation of curbside collection, the City eliminated use of drop-off facilities. ~~Recyclable materials include aluminum cans and foil, #1 and #2 plastic bottles and containers, glass jars and bottles, tin and steel cans, mixed paper (newspaper, office, junk mail, telephone books, catalogs/magazines), cardboard and paper bags, boxboard (e.g., cereal boxes, paper towel rolls).~~ Beginning on June 30, 2022 the curbside collection of recyclable materials by the City was ended and it has transitioned to a subscription based recycling program where residents can contract directly with private recycling providers for curb side collection and processing. On July 1, 2022 the City re-established residential drop off recycling sites. The sites will accept metal cans (aluminum, tin and steel), plastics #1 -7, mixed paper (newspaper, office paper, magazines, catalogs, mail) boxboard (e.g., cereal boxes, paper towel rolls) and corrugated cardboard (shipping box only).

- Curbside recycling in Franklin is provided through a contract with a private firm (All Virginia Environmental Solutions). The service provider uses an automated, single-stream system using 95-gallon carts. Items that are recyclable are, aluminum cans, cardboard, paper (office, newspaper, junk mail, catalogs, glass (clear, green and brown), metal cans, newspaper, office paper and plastics #1 through #7.

- Isle of Wight operates eight, single-stream drop-off recycling facilities at the County convenience centers (Camptown, Carroll Bridge, Carrsville, Crocker's, Jones Creek,

Stave Mill, Walters and Wrenn's Mill). Materials accepted at the centers include paper (newspaper, office, magazines and telephone books, junk mail), cardboard, paperboard (cereal boxes, shoe boxes), milk and juice cartons, plastic bottles and containers (#1 through #7), glass, tin and steel cans, aluminum (cans, foil, pie plates). Additional containers are available for plastic bags, electronics, scrap metal, appliances, cooking oil, motor oil, yard waste. Residents of Smithfield receive monthly curbside collection of recyclable materials through a private contractor.

- Norfolk provides curbside collection of recyclable goods on a bi-weekly basis to 58,200 single-family homes. Each residence is provided a 90-gallon recycling container for participation in the curbside program. Citizens also have two drop-off facilities located in the City for recycling; a third site is scheduled to open soon. Office paper and cardboard are collected from Norfolk schools and other City buildings.

- The City of Portsmouth discontinued its curbside recycling program and provides residents the opportunity to recycle at seven local drop-off sites located throughout the City. The bins accept comingled materials.

- Southampton County offers recycling services through drop-off facilities as well as single-stream curbside collection (in some areas of the County) through a contract with a private firm (All Virginia Environmental Solutions). The County is in the process of providing containers for recycling at 11 convenience centers and transfer stations. Recyclables collected include paper, cans (aluminum, steel, tin), glass, plastic bottles and tubs, cardboard, and paperboard.

- Suffolk currently offers recycling services through 13 drop-off locations. Materials accepted include aluminum cans, plastic bottles (#1 and #2), cardboard, mixed papers, steel/tin cans and glass bottles. Suffolk currently has a franchise agreement for a private hauler for curbside collection, but must have 2,500 homeowners sign up for service for it to become effective. The cost for this service is $12 per month.

- Virginia Beach contracts for its own recycling program through Tidewater Fibre Corporation and provides containers to all residents who receive curbside waste collection from the City. Automated recycling pickup, using large 95-gallon containers, is provided on an every-other-week basis. In addition, four drop-off facilities are also located throughout the City.

Some of the programs offered by SPSA include the following:

- **Ferrous Metal Processing Plant.** Metal collected at the RDF WTE Facility and at the drop-off facilities is brought to this Plant for processing. (Propane tanks are collected as well and handled through a contract with a local distributor.) Ferrous metals, such as steel food and paint cans, scrap metal, and compressed gas tanks are processed into small nuggets at the Bi-Metals Recycling Facility at the Regional Landfill. These nuggets are then sold to steel mills and processed into new steel.

- **White Goods Recycling Facilities.** Refrigerators, washing machines, air conditioning units, and other large household appliances are collected from residents free of charge at the Regional Landfill. Local contractors prepare the appliances for recycling by removing and collecting the freon for proper disposal. The scrap metal from the appliances is then recycled.

- **Tire Shredder** . Tires are shredded at the Tire Processing Facility located at the Regional Landfill. The shredded tires are used for drainage projects, pipe bedding and alternate daily cover ADC). SPSA reports that approximately 400,000 tires are shredded per year.

- **Used Oil Collection Sites.** Most SPSA facilities have containers to collect motor oil from residents free of charge. Used oil is cleaned of particles and processed into new oil and fuels. The oil collected by SPSA is recycled through a contract with a private vendor.

A summary of recycling opportunities for various materials is provided in Table 5~~Error! Reference source not found.~~.

2.1.2 Recycling Quantities

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A summary of recyclable materials collected in the region is provided in Table 5. Over the past several years, the region has annually collected around 500,000 tons of waste to be recycled.

Table 5. Local Recycling Programs

	Curbside Recycling							
	Cardboard & Paper	Plastic Bottles & Jugs	Glass Bottles & Jars	Metal Cans	Cartons	Plastic Tubs (Wide Mouth)	Rigid Plastics (Small)	Rigid Plastics (Large)
Chesapeake	x	x	x	x	x			
Franklin	x	x	x	x				
Isle of Wight	No curbside recycling service							
Norfolk	x	x	x	x	x			
Portsmouth	x	x	x	x	x	x		
Southampton	x	x	x	x		x		
Suffolk	x	x	x	x	x			
Virginia Beach	x	x	x	x	x			

	Drop-Off Recycling							
	Cardboard & Paper	Plastic Bottles & Jugs	Glass Bottles & Jars	Metal Cans	Cartons	Plastic Tubs (Wide Mouth)	Rigid Plastics (Small)	Rigid Plastics (Large)
Chesapeake	x	x	x	x	x			
Franklin	No drop-off recycling service							
Isle of Wight	x	x	x	x	x	x		
Norfolk	x	x	x	x	x			
Portsmouth	x	x	x	x	x	x		
Southampton	x	x	x	x		x		
Suffolk	x	x	x	x	x			
Virginia Beach	x	x	x	x	x			

Table 6. Principle Recyclable Materials (Tons)

	CY2015	CY2016	CY2017	CY2018	CY2019	CY2020	CY2021
Paper	84,225	64,497	56,383	56,245	48,332	34,136	15,819
Metal	102,885	169,296	263,566	274,103	270,094	265,694	228,960
Plastic	2091	12,223	1,869	680	1,546	114	579
Glass	1,797	3,830	5,556	2,721	4,929	49	0
Commingled	102,885	151,953	90,759	88,020	71,024	110,492	99,516
Yard Waste	67,807	20,195	45,330	17,294	11,837	16,390	24,433
Waste Wood	36,834	3,992	8,208	39,578	16,906	7,109	13,966
Textiles	1,483	3,433	128	4	4,260	4,557	4,500
Waste Tires	6,057	2,924	4,915	7,852	7,575	1,344	571
Used Oil	3,017	4,294	3,999	3,182	1,242	8,018	461
Used Oil Filters	54	389	209	161	24	176	12
Used Antifreeze	94	102	108	155	41	144	41

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Table 6. Principle Recyclable Materials (Tons)

	CY2015	CY2016	CY2017	CY2018	CY2019	CY2020	CY2021
Batteries	3,222	2,863	2,877	3,772	1,164	3,190	3,327
Electronics	262	764	986	288	216	111	214
Inoperative Motor Vehicles	N/A	N/A	N/A	N/A	44,818	34,136	82,500
Food Waste	N/A	36,371	2,316	74	2,857	N/A	N/A
Toner Cartridges	N/A	15	14	16	10	N/A	N/A
Cardboard[1]	N/A	N/A	19,806	N/A	N/A	N/A	N/A
Cooking Oil	N/A	N/A	99	17	N/A	N/A	N/A
Wood Pallets	N/A	N/A	10,891	8,803	314	N/A	N/A
Sludge (composted)	N/A	N/A	N/A	N/A	909	N/A	N/A
Total	**463,628**	**477,141**	**518,019**	**502,965**	**488,098**	**485,660**	**474,899**

Source: HRPDC, as annually reported to DEQ via the "Locality Recycling Rate Report"
1) In most years, cardboard is classified under the PRM paper.

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2.1.3 Recycling Education

HRPDC and the individual localities continue to bring awareness of its programs to the public that are both local and regional in scope. Educational initiatives to encourage recycling are currently underway both at the local and regional level. These educational initiatives will be continued and expanded, based on need and availability of funding and staff resources, to ensure that the citizens and businesses in the SPSA localities are aware of available recycling programs and the benefits of recycling.

- **HR CLEAN: HR CLEAN** promotes litter prevention, recycling, community beautification and environmental awareness in the cities and counties that make up the Hampton Roads Region. The program is managed by the HRPDC and closely coordinates with other regional environmental education programs. The program's website (www.hrclean.org) contains information on residential recycling, business recycling and buying recycled goods.

- **Chesapeake:** The city has ~~curbside~~ recycling information, including how to contact subscription based recycling providers and where drop-off sites will be located~~"how to" videos for the new curbside collection program available~~ on its website (https://www.cityofchesapeake.net/government/City-Departments/Departments/Public-Works-Department/wastemanagement-recycling.htm)~~(http://www.chesapeake.va.us/services/depart/pub-wrks/wastemanagement-recycling.shtml).~~ The City has implemented "Recycling Perks," a program that rewards residents for participation in the recycling program. The City's website states that "Recycling Perks are designed to help residents save money and provide discounts on entertainment or leisure activities. Rewards are offered by local businesses to reward residents for recycling."

- **Franklin:** Recycling information is included in the city's newsletter *City Clips*, which is available online at: http://www.franklinva.com.

- **Isle of Wight:** The county has a webpage devoted to environmental issues, including recycling, that is entitled *Isle be Green* (http://islebegreen.com).

- **Norfolk:** The Norfolk Environmental Commission http://www.norfolkbeautiful.org/). This website contains information for Norfolk residents regarding household hazardous waste, recycling, and adopt a spot. Additional recycling information is available on the city's website (http://www.norfolk.gov/curbside_recycling).

- **Portsmouth:** Information regarding recycling drop off facilities is available on the city's website at http://www.portsmouthva.gov/publicworks/recycle.aspx.

- **Suffolk:** Recycling information is provided on the City's website at http://www.suffolk.va.us/pub_wks/recycling.html.

- **Virginia Beach:** Recycling information is available on the city's public works webpage, which is available through http://www.vbgov.com. The Waste

Management division also uses social media to disseminate updated recycling information. Virginia Beach recently acquired an official recycling mascot to attend local events. The mascot represents the city's "Catch the Wave--Recycle" logo.

Both the municipalities and the HRPDC provide information to the public on waste disposal issues, including litter control, recycling, household hazardous waste, and waste minimization. In addition, through askHRgreen, information is provided to the public on a variety of other environmental issues. This information is provided in the form of media coverage, advertising, fact sheets, brochures, educational materials, and "give-aways."

Several askHRgreen campaigns address issues such as single-use plastics campaign, straw-free Earth Day, and grants to schools regarding measures to reduce plastic use. In addition, through the HRDPC Recycling and Beautification Committee, askHRgreen conducted a waste reduction media campaign in FY2019 called Choose to Refuse. The campaign included paid media, outreach materials, public relations, and social media efforts to raise awareness about waste reduction. The Committee's message to the region's residents was that we should all choose to reduce our waste production first before focusing on what can or cannot be recycled.

2.1.4 Private Recycling Programs

Private businesses provide additional recycling opportunities in the Region for residents and businesses. Many examples are provided below.[1] Although most recycling businesses accept one or two materials, many accept a range of common recyclable materials. In addition to the opportunities listed here, many large businesses, such as Walmart, have branches in the Region likely have their own recycling programs to back-haul their recyclables to central locations.

The quantities of materials recycled through private recyclers is typically not tracked in a comprehensive fashion by the Region. Quantities of recycling by firms are tracked.

2.1.4.1 Commercial Recycling Collection

TFC, Bay Disposal, and RDS offer fee-based recycling opportunities to commercial businesses located in the Region. Collection programs generally are offered for paper, corrugated cardboard, plastic containers, aluminum cans, steel/tin cans, and glass. Butler Paper Recycling and Atlantic Paper Stock provide office and institutional recycling for paper commodities.

2.1.4.2 Private Material-specific Drop-off Locations

Several businesses in the Region specialize in recycling a few material types as described below.

2.1.4.2.1 Electronics

[1] Discussion of specific recycling programs in this section should not be construed as a recommendation or endorsement by the Hampton Roads Planning District Commission. The recycling programs discussed here may not represent all programs available in the region as some businesses may have reduced or expanded the types of materials they accept.

Collection of computers, monitors, laptops, and televisions, telephones, game consoles, and small appliances is provided by Goodwill, Best Buy, and electronics retailers. Generally, electronics recycling, with the exception of monitors, is free; however, some retailers will provide incentives for users of their electronics recycling programs.

2.1.4.2.2 Household battery, ink cartridge, and cell phone collection

Several locations within the Region collect ink cartridges, cell phones and household batteries. Some retailers, such as Target, collect all three. Only cell phones are collected at most wireless retailers. Retailers that accept NiCad/rechargeable batteries include Home Depot, Best Buy, and Batteries Plus. Ink cartridges are accepted at recycling programs operated by OfficeMax and Best Buy.

2.1.4.2.3 Metal Recycling

Several metal recyclers are located in the Region that will accept both ferrous and nonferrous metals, including aluminum, brass, and copper. These recyclers include Sims Metal Management Dubin metals, Guterman Iron and Metal, Surplus Recycling, U-Cycle Recycling, Virginia Beach Salvage Exchange, and Wise Recycling. Some will pay a fee for certain metals.

2.1.4.2.4 Car Batteries and Used Motor Oil

Car batteries and used motor oil are accepted at Jiffy Lube, Advanced Auto Parts, Firestone, Treadquarters, Pep Boys, and Interstate.

2.1.4.2.5 Compact Fluorescent Lights

Used compact fluorescent lights (CFL) are accepted by Home Depot and Lowes stores.

2.1.4.2.6 Plastic Bags

Plastic bags (#2 and #4 plastics) are accepted at a variety of grocery stores and retailers including Farm Fresh, Sam's Club, Lowe's, JCPenny, Walmart, and Target.

2.1.4.2.7 Asphalt, Concrete, and Brick

These three materials are accepted by Waterway. Concrete is accepted by Vulcan materials.

2.1.4.2.8 Waste Cooking Oil

Virginia Beach SPCA accepts used vegetable oil to fuel its Neuter Scooter mobile clinic.

2.1.4.2.9 Textiles

Goodwill stores generally recycle textiles that are not of high enough quality to be sold in the stores.

2.1.4.3 Reuse Opportunities

Various organizations offer reuse opportunities for clothing and household items including Goodwill, Salvation Army, and Habitat for Humanity (reusable building materials).

2.1.5 Material Recovery Facilities

Table 7 lists the known active MRFs in the Tidewater area.

Table 7. Material Recovery Facilities in Southeastern Virginia

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Facility Name	Location
Active Permitted Facilities	
~~B&H Sales Corp (PBR567)~~	~~Norfolk~~
Bay Disposal LLC (PBR598)	Norfolk
Bay Disposal LLC (PBR620)	Smithfield
Clearfield MMG Inc - Suffolk (PBR155)	Suffolk
Clearfield MMG Inc - Chesapeake (PBR622)	Chesapeake
Military Highway Recycling Center MRF (PBR596)	Chesapeake
Recycling and Disposal Solutions of Virginia (RDS) (PBR558)	Portsmouth
Select Recycling Waste Services Inc (PBR619)	Chesapeake
SPSA – Tire Processing Facility (PBR072)	Suffolk
TFC Recycling - Chesapeake (PBR568)	Chesapeake
United Disposal Incorporated (PBR522)	Norfolk
US Navy - Norfolk Naval Shipyard (PBR135)	Portsmouth
Waste Industries LLC (PBR077)	Chesapeake
~~Wheelabrator~~WIN Waste Portsmouth Inc (PBR 500)	Portsmouth

Source: Virginia DEQ 2021~~19~~ Annual Solid Waste Report for CY2020~~18~~

2.1.6 Markets for Recycling and Reuse

Currently, all of the municipalities rely on the private sector for processing and marketing of collected recyclables. Collected materials are sold to a variety of end markets; the municipalities have no control over marketing decisions or prices paid. The municipalities can affect recycling markets, however, by:

- Using economic development mechanisms to attract business that manufacture recycled products or assist current businesses with methods to use recycled materials. By doing this, the region will help close the loop for recycling and can create markets for their collected materials.
- Creating viable, long-term markets for recovered materials. Generally, markets for recyclables are driven by demand for the end-products manufactured from recovered materials. The region can encourage procurement of products made with recycled content.

2.1.7 Summary

Currently there is only one significant facility in the Region that is capable of processing materials collected from various recycling programs. At the time the 2005 SWMP was written, SPSA was the primary provider of recycling collection services in the Region, with the exception of Virginia Beach. As an alternative, SPSA considered the construction and operation of a competing MRF. However, SPSA has discontinued recycling services and the member communities have taken over the responsibility for collection of recyclables. Processing of recyclables is currently a private sector function (see Figure 3).

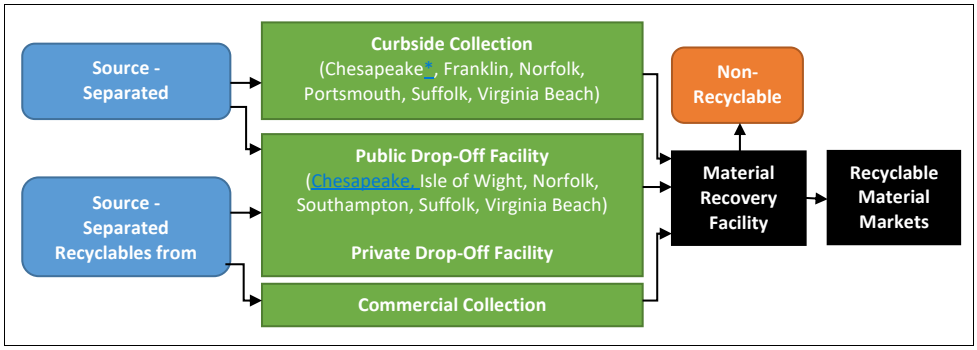


Figure 3. Management of Recyclables

*Effective July 1, 2022 Chesapeake has implemented subscription-based collection

2.2 YARD WASTE MANAGEMENT

Household chores such as raking leaves, mowing grass and trimming trees and shrubs generate the majority of yard waste, which has accounted for approximately 20 percent of solid waste collected in the Region (from SPSA Yard Waste Recycling flyer). The following is a summary of current yard waste collection/handling activities.

2.2.1 Municipal Collection

The majority of yard waste generated in the Region is currently collected by the SPSA member communities:

- **City of Chesapeake.** Leaves, trimmings and grass clippings are picked up with regular collections when placed at curbside. The City requires yard waste, leaves and grass clippings to be placed in clear plastic bags. The material currently is delivered to Waterway Materials or the Holland Landfill.

- **City of Franklin.** Each customer is provided a green 90-gallon cart for yard waste collection. Collected yard waste is delivered to a city-owned farm where it is processed.

- **Isle of Wight County.** Approximately 600 tons of yard waste is delivered to the convenience centers, which is transported to a composting facility in Waverly, Virginia.

- **City of Norfolk.** The City collects yard wastes, in amounts up to 20 clear plastic bags (up to 3 cubic yards if scheduled). The City disposes of some yard waste along with bulk items with a private vendor but the majority of yard waste is transported to a composting facility in Waverly, Virginia.

- **City of Portsmouth.** The City provides yard waste collection services; material is taken to the City of Portsmouth's landfill at Craney Island.

- **Southampton County.** The County does not offer curb side yard waste collection. Yard waste is delivered by citizens to the mini-transfer stations operated by the County. Woody debris is grinded by a private vendor.

- **City of Suffolk.** The City collects yard waste from single-family homes. Collected material is sent directly to the Regional Landfill or the Suffolk Transfer Station.

- **City of Virginia Beach.** The City collects yard waste from residences on a weekly schedule. Most yard waste collected is currently transported to a private composting facility in Waverly for beneficial reuse. Some yard waste is mulched at the City's Landfill No. 2 and used to landscape city properties.

2.2.2 Previous SPSA Yard Waste Management Initiatives

SPSA has operated facilities where yard waste collected by member communities was handled, mulched and composed. The end product of this activity had been a source of revenue for the Authority through the sales of mulch and compost (marketed as Nature's Blend). In 2005, operations conducted at the Regional Landfill and Landfill No. 2 were consolidated on a section of Landfill No. 2 known as Phases 2B and 3. However, this facility was closed in 2007 to address Landfill No. 2 neighbor complaints of excess odors from the facility. No new regional initiatives have been implemented since the Virginia Beach Landfill No. 2 facility was closed.

2.2.3 Private Sector Yard Waste Management

Waterways Recycling, LLC is located in Chesapeake and operates out of Waterway Marine Terminal. Though the facility is capable of processing and recycling the full range of construction, demolition and debris (CDD) materials, the facility is slightly more geared to convert woodbased debris into processed wood. A significant portion of their recycled product customer base pre-orders and utilizes its wood chips.

2.2.4 Yard Waste Management Summary

As stated previously, the Region does not currently have a facility dedicated to the handling and processing of yard waste, although several member communities are in the process of implementing programs to beneficially reuse the yard waste that they collect.

2.3 SOLID WASTE COLLECTION

2.3.1 Municipal Collection

Below is a summary of each member's MSW collection services to its citizens. Table 8 provides the relative contributions of the SPSA member localities to the total collected waste within the region. Municipal quantities have generally decreased over the past several years.

2.3.1.1 City of Chesapeake

Chesapeake's Department of Public Works, Division of Waste Management collects residential solid waste once per week from over 65,000 households using automated vehicles. Collected waste is primarily delivered to either the RDF WTE Facility or the SPSA Chesapeake Transfer Station located just off Greenbrier Parkway. The City supplies the residents with standard 96-gallon solid waste containers. Also available upon request is a smaller, 64-gallon container or 35-gallon container.

Chesapeake residents are able to dispose of waste at the Chesapeake Transfer Station or any other SPSA facility at no charge. Yard waste (clear bags or bundles) and bulk waste are collected weekly from residents as well. No requests are necessary for pick-up of yard waste, but the City does require that requests to schedule bulk waste collection be received one week prior to the day of collection. Yard waste is delivered to Waterway Materials or the Holland Landfill, bulk waste is delivered to SPSA or to the Holland Landfill.

Residents are responsible for properly disposing of their own building debris and are directed to SPSA transfer stations and the Regional Landfill in Suffolk.

Chesapeake also collects waste from a limited number of small commercial establishments that are able to deposit all waste into two or three cans. The City does not intend to expand this service to additional establishments.

2.3.1.2 City of Franklin

The City of Franklin's Department of Public Works offers collection for 3,000 residential and small commercial generators, with weekly solid waste and yard waste collection. Special collections of bulk waste are offered upon request once a month. Each of the customers is given a black 90-gallon solid waste receptacle and a green 90-gallon cart for yard waste. Bulk yard waste is also collected upon request. Yard waste collected is delivered to a city-owned farm where it is processed. All other wastes are taken to the SPSA Franklin transfer station.

2.3.1.3 Isle of Wight County

The County operates eight convenience centers to handle solid waste, most of which are open seven days a week. A SPSA transfer station within the County is also available for waste disposal.

If requested, curbside collection is provided to Isle of Wight County residents for a fee by a franchised commercial hauler. The Towns of Smithfield and Windsor also each provide curbside pickup for residents through an agreement with a private hauler. Smithfield provides twice-weekly pickup of both residential refuse and yard debris. The hauler provides containers for a monthly fee. No municipal refuse collection is provided for Town businesses.

2.3.1.4 City of Norfolk

The Waste Management Division of the Department of Public Works collects approximately 95,000 tons of refuse, bulk waste, and yard waste annually from 61,000 households and businesses within the City. The City issues 90-gallon containers to residents of single-family homes, and curbside collection is provided once weekly by automated collection vehicles. Collection of bulk wastes is handled on the same designated day, when requested at least 24 hours in advance. In addition, yard wastes, in amounts up to 20 clear plastic bags (up to 3 cubic yards if scheduled), can also be collected at this time for recycling.

Waste collection in Norfolk's central business district takes place each Monday, Wednesday, and Friday evening. In addition, the City collects recyclables such as paper and cardboard each Tuesday and Thursday evening. Businesses outside the central business district receive waste collection weekly.

2.3.1.5 City of Portsmouth

The City of Portsmouth's Department of Public Works collects MSW from approximately 33,000 households each week using 95-gallon containers. The collected waste is delivered to the WIN Waste RDF WTE Facility. Bulk waste and yard waste collection services also are provided; material is taken to the City of Portsmouth's landfill at Craney Island.

2.3.1.6 Southampton County

In addition to the Franklin Transfer Station, SPSA operates two other stations within Southampton County at Ivor and Boykins. The County offers to the residents of Southampton County fourteen mini-transfer stations. The waste collected from these mini-transfer stations is then delivered to the larger sites, where it is collected by SPSA. Southampton County residents may dispose of waste at any other SPSA facility free of charge.

2.3.1.7 City of Suffolk

The City of Suffolk Department of Public Works provides weekly residential refuse collection for all single-family homes within the City (approximately 32,000) using 90 gallon containers and automated collection vehicles. The City also provides collection services to approximately 200 businesses. Bulk and yard waste are also collected by the City. The City delivers collected waste directly to the Regional Landfill or the Suffolk Transfer Station.

2.3.1.8 City of Virginia Beach

Virginia Beach provides 95-gallon solid waste containers and weekly, automated curbside collection for approximately 150,000 households within the City. Curbside bulk pickup is

available to households by special request. Each request must be received 24 hours prior to the regularly scheduled collection day. Yard waste is also collected from residences on the collection day. Bulk waste is delivered to the SPSA transfer stations and the majority of yard waste is transported to a private handling facility near Waverly, Virginia. Some yard waste is transported to the City's Landfill No. 2 where it is mulched for use on city properties.

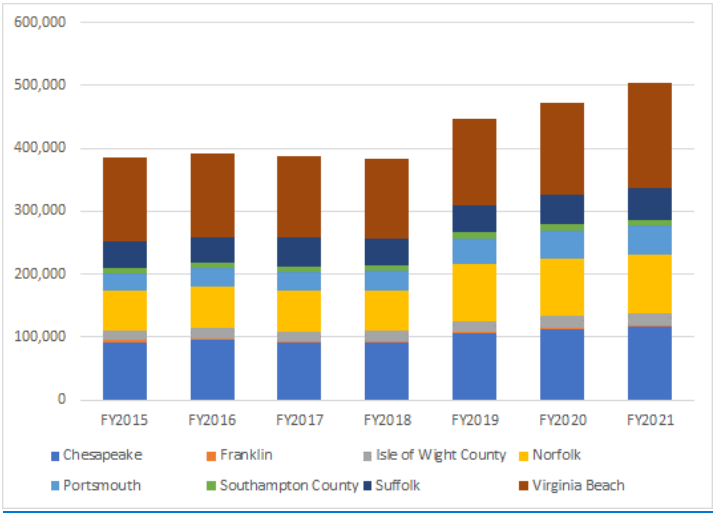
The Virginia Beach Landfill No. 2 is a 300-acre facility located in the Kempsville area of the City. Waste generated within the City by Virginia Beach residents can be delivered in privately owned vehicles to Landfill No. 2 free of charge. However, most of the waste received at the Landfill wasis ash from the WheelabratorWIN Waste RDF WTE Facility.

~~Table 8.~~

~~Table 9.~~Table 8. Breakdown of Municipally Collected Waste by Locality

Locality	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY 21 Percent of Total
Chesapeake	92,072	94,981	90,926	90,896	105,353	112,154	115,566	223.98%
Franklin	2,524	2,592	2,690	2,698	2,955	3,276	3,543	0.7%
Isle of Wight County	16,070	16,513	15,180	16,883	17,265	17,102	17,948	3.64.2%
Norfolk	62,296	66,240	64,575	62,587	90,129	92,423	93,632	186.61%
Portsmouth	28,439	29,089	30,023	32,769	40,222	43,829	45,977	9.17.4%
Southampton County	8,107	8,385	8,593	8,910	10,675	9,881	9,775	1.942.1%
Suffolk	43,337	40,770	45,645	40,847	42,325	46,614	49,482	9.811.2%
Virginia Beach	133,304	134,285	130,645	127,483	138,823	147,250	167,748	33.34.5%
Total	386,149	392,855	388,277	383,073	447,747	472,529	503,671	100%

Source: SPSA FY2023~~1~~ Operating and Capital Budgets
~~Tonnage per Household calculated using data on Table 4~~



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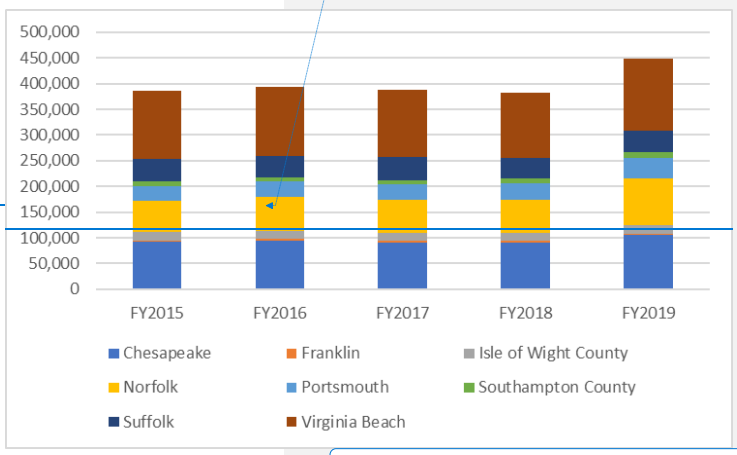

Source: SPSA ~~FY2020 and~~ FY2023~~1~~ Operating and Capital Budgets

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Figure 4. MSW Collected by Locality(Tons)

~~Table 10.~~Table 9. Solid Waste Services

Service	Chesapeake	Franklin	Norfolk	Portsmouth
Solid Waste Residential Collection	The city provides weekly, automated collection using 96-gallon containers.	The city provides weekly collection using 90-gallon containers.	The city provides weekly, automated service using 90-gallon containers.	The city provides weekly collection services.
Solid Waste Commercial Collection	Not provided.	The city provides collection services for small commercial generators.	The city provides collection services for businesses located in the Central Business District (CBD) every other day. Businesses located outside the CBD receive one weekly collection.	Not provided.
Yard Waste Collection	City provides separate collection of yard waste using clear plastic bags on a weekly basis.	City provides collection services using a green 90-gallon cart on a weekly basis.	Yard waste is collected weekly by the City. Residents may use either a 30-gallon container or clear plastic bags.	Yard waste is collected by the City in clear plastic bags from the curb (placed next to MSW).
Recyclables Collection	~~The City provides curbside recycling services for the city every other week using a 96-gallon bin.~~Effective July 1, 2022 transition~~ed~~ing to subscription-based curbside collection and public drop-off facilities	Franklin offers automated recycling using a 95-gallon cart.	The city collects recyclables twice a week from businesses located in the CBD. Curbside collection of recyclables is provided by the City every other week using a 95-gallon cart.	The City operates recycling drop off locations for the city.

Table 9 (Continued)

Service	Suffolk	Virginia Beach	Isle of Wight	Southampton
Solid Waste Residential Collection	The city provides weekly automated and manual collection from single-family homes.	The city provides weekly automated collection from single-family homes using 90-gallon containers. Townhouse areas may use 32-gallon containers or plastic bags.	The county provides weekly collection through a franchised hauler (for a fee) for those residents requesting the service. As an alternative, the county operates eight full-service manned convenience centers for self-hauled waste.	The county operates 14 sites for residents to self haul waste.
Solid Waste Commercial Collection	Not provided.	Not provided.	Not provided.	Not provided.
Yard Waste Collection	The City offers curb-side yard waste collection upon request (limited to residential dwellings).	The City provides weekly collection of yard waste either stacked or in clear plastic bags. The City also offers a yard waste container rental program for larger quantities of yard waste.	The County does not provide curb-side collection of yard waste, but does provide containers for residents to dispose of yard waste at each of its eight convenience centers.	The County does not offer curb-side yard waste collection. Yard waste is accepted at the County's 16 refuse collection sites.
Recyclables Collection	The city offers drop-off only recycling for its residents. Drop-off facilities are located throughout the city.	Virginia Beach provides residents with automated curbside collection (non-SPSA) using 95-gallon carts on an every-other-week basis.	Drop-off only recycling sites for the county that are located at the convenience centers and the transfer station. The town of Smithfield offers bi-weekly curbside recycling to all single-family homes, duplexes, and townhouses.	The county provides 18-gallon bin recycling for residents of Courtland, Newsoms, and Boykins. Drop-off facilities are located at six of the county's mini-transfer stations.

2.3.2 Private Collection

Private firms perform a significant function in the Region with regard to waste collection and disposal. While the SPSA member communities are the primary collectors of MSW from single-family residents (with the exception of the more rural areas in Southampton and Isle of Wight Counties), private firms are the primary collectors of MSW from multi-family, commercial, and industrial establishments. Commercially collected MSW is delivered by the private firms to either the ~~Wheelabrator~~WIN Waste RDF WTE Facility, a SPSA Transfer Station or an out -of Region disposal facility. Of the waste that is delivered to the Transfer Stations, processible waste is delivered to the RDF WTE Facility by SPSA for a fee. Non-processible waste is loaded onto ~~Wheelabrator~~WIN Waste trailers for eventual disposal at Waste Management's Bethel or Atlantic Waste Landfills ~~(Waste Management is the parent company of Wheelabrator)~~. ~~Wheelabrator~~WIN Waste maintains contracts with the private haulers. Firms that play a significant role in the collection of MSW in the Region include Waste Management, Waste Industries (now GFL), Republic Services, and Bay Disposal.

2.3.2.1 Commercial Waste Receipts

During FY ~~2019~~2021, SPSA's commercial customers delivered ~~183,715~~181,284 tons of waste into the system. This amount includes 26,~~265~~176 tons of Navy waste and ~~86,195~~92,113 tons of other waste. Historically, quantities of commercial waste have been decreasing due to expiration of contracts, an increase in tipping fees for CDD waste, and a decision to cease accepting out of region waste in late 2008.

~~Table 11.~~Table 10. SPSA Commercial Waste Receipts

	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
Commercial	471,812	403,461	411,630	286,898	183,715	170,987	181,284
Navy	25,357	24,869	24,500	26,668	26,265	24,975	26,176
Other Waste	118,935	181,187	69,938	65,567	86,195	184,030	92,113
Total	616,104	609,517	506,068	379,133	296,175	379,992	299,576

Source: SPSA FY202~~1~~3 Operating and Capital Budgets

2.3.2.2 Flow Control

When SPSA was formed, its organization and facilities were sized and began operations under the assumption that all MSW generated in its service area would be delivered to SPSA facilities. Since SPSA's formation, the Commonwealth of Virginia has allowed several large landfills to be constructed in largely rural areas of eastern Virginia.

With the adoption by the U.S. Supreme Court of the Carbone decision in 1994, neither states nor localities could effectively control the flow of waste across political boundaries. In order to internalize cash flows, the operators of the large private landfills began hauling waste generated from within the SPSA service area to their own landfills, sometimes as much as 100 miles away. Because the SPSA system was developed and sized to accept all of the region's waste, the loss of a significant portion of the waste stream has had a significant negative financial impact on SPSA

and its member communities. The Use and Support Contracts which called for member communities to deliver all or substantially all of their solid waste to SPSA were effectively amended by this decision to include only that waste which is collected by the member communities or controlled by them through contracts. The SPSA system was built under the assumption that SPSA members could control the flow of both residential and commercial solid waste generated within their borders and that adequate waste flows would create sufficient revenues to finance construction and maintenance of the system. In 1994, the U.S. Supreme Court ruled (Carbone case) that flow control was unconstitutional. After this decision, SPSA's commercial waste flows significantly decreased. In an attempt to regain lost waste flows, SPSA negotiated contracts with private haulers, both in and outside of the Region, which included a reduced tipping fee.

In 2007, the Court clarified its decision (United Haulers case) to allow localities to direct waste to a publicly-owned facility. As a result, the cities of Norfolk, Chesapeake, Portsmouth, and Franklin, and Isle of Wight and Southampton counties passed ordinances requiring delivery of waste generated within their jurisdictions to SPSA facilities beginning in January 2009; however, the Cities of Virginia Beach and Suffolk did not. The decline in commercial waste deliveries, and the resulting negative revenue impact to SPSA led to a financial crisis culminating in the sale of the RDF WTE Facility to ~~Wheelabrator~~ Wheelabrator (now WIN Waste) in April 2010. This has significantly reduced SPSA's debt service, stabilized its financial condition, and reduced tipping fees.

2.4 SOLID WASTE TRANSFER

2.4.1 SPSA Transfer Stations

SPSA currently operates seven transfer stations and two convenience centers. The facilities received ~~657,924~~705,563[2] tons of waste in FY2021~~19~~. Figure 5 shows the location of each facility. In 2021~~9~~, the Landstown Transfer Station ~~Norfolk Station~~ accepted the greatest percentage of waste followed by the Norfolk Transfer Station~~Landstown Station~~. A summary of each transfer station throughput is provided in Table 11. The 2017 SPSA Annual Survey Report prepared by CH2M describes the current condition of the SPSA transfer stations as well as recommended maintenance activities.

- *Boykins Convenience Center*: The station opened in 1985 and consists of an elevated area where customers can deposit waste into a stationary compactor or two open-top roll-off containers. The station is permitted to accept 50 tons per day and is manned by Southampton County and serviced by SPSA.

- *Chesapeake Transfer Station*: This transfer station was built in 1984 and utilizes a bi-level, non-compacted, direct-dump design consisting of one refuse hopper, a tipping area on the upper level, and a "load out" area on the lower level. The facility has a maximum capacity of 500 tons per day with a storage capacity of up to 150 tons at any given time.

[2] The Boykins and Ivor Convenience centers receive approximately 650 tons per year. This figure also include waste from Portsmouth and Chesapeake delivered directly to the ~~Wheelabrator~~WIN Waste RDF facility.

The station utilizes a drop-and-hook system, which allows waste on the floor to be removed and placed in staged trailers for hauling at a later time.

- *Franklin Transfer Station*: This station was opened in 1985 and consists of an open tipping floor area screened with a fabric chain link fence and a prefabricated office building. Waste is dumped into the single hopper directly into open-top transfer trailers and is hauled to the Regional Landfill by SPSA. The facility is permitted for 150 tons per day and capable of storing 50 tons at any one time. The station utilizes a drop-and-hook system, which allows waste on the floor to be removed and placed in staged trailers for hauling at a later time.

- *Isle of Wight Transfer Station*: This station was opened in 1985 and consists of a push-wall transfer station with a three-sided metal building superstructure. Transfer trailers travel on a loading lane situated at a lower grade than the tipping floor so that the side of the trailers are approximately four feet above the tipping floor, and a front-end loader lifts waste into the transfer trailers which are then hauled to the Regional Landfill by SPSA. The station is permitted for 150 tons per day and capable of storing 50 tons at any one time. The station utilizes a drop-and-hook system, which allows waste on the floor to be removed and placed in staged trailers for hauling at a later time.

- *Ivor Convenience Center*: This station was opened in 1985 and consists of an elevated area where customers can deposit waste into a stationary compactor or two open-top roll-off containers. The station is permitted to accept 30 tons per day and is manned by Southampton County and serviced by SPSA.

- *Landstown Transfer Station*: This station opened in 1993 and consists of an enclosed tipping floor with three hoppers for loading. The station is permitted to accept 1,500 tons per day.

- *Norfolk Transfer Station*: This station opened in 1985 and consists of an enclosed tipping floor with three hoppers for loading. The station is permitted to accept 1,300 tons per day.

- *Oceana Transfer Station*: This station was built by the City of Virginia Beach in 1982. In 1987, SPSA bought the facility. The station has a design capacity of 500 tons per day, with the capability of storing 450 at any one time. The station utilizes a drop-and-hook system, which allows waste on the floor to be removed and placed in staged trailers for hauling at a later time.

- *Suffolk Transfer Station*: This station, built in 2005, is located near the entrance to the Regional Landfill and consists of an enclosed tipping floor with two hoppers for loading. The station is permitted to accept 1,300 tons per day. The station utilizes a drop-and-hook system, which allows waste on the floor to be removed and placed in staged trailers for hauling at a later time.

2.4.2 Private Transfer Stations

There are no known proposed or permitted privately owned transfer stations in the Region.

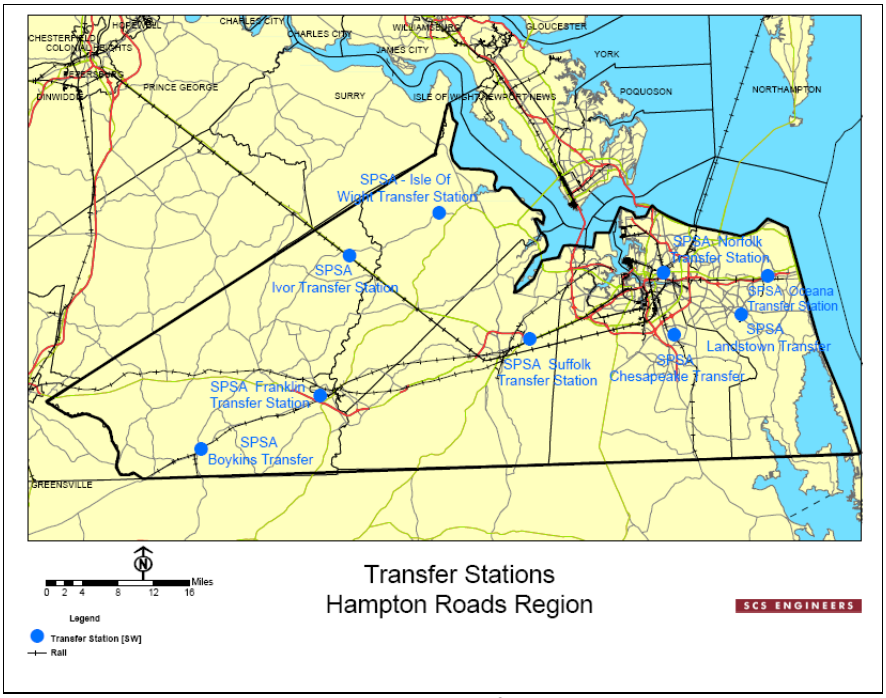
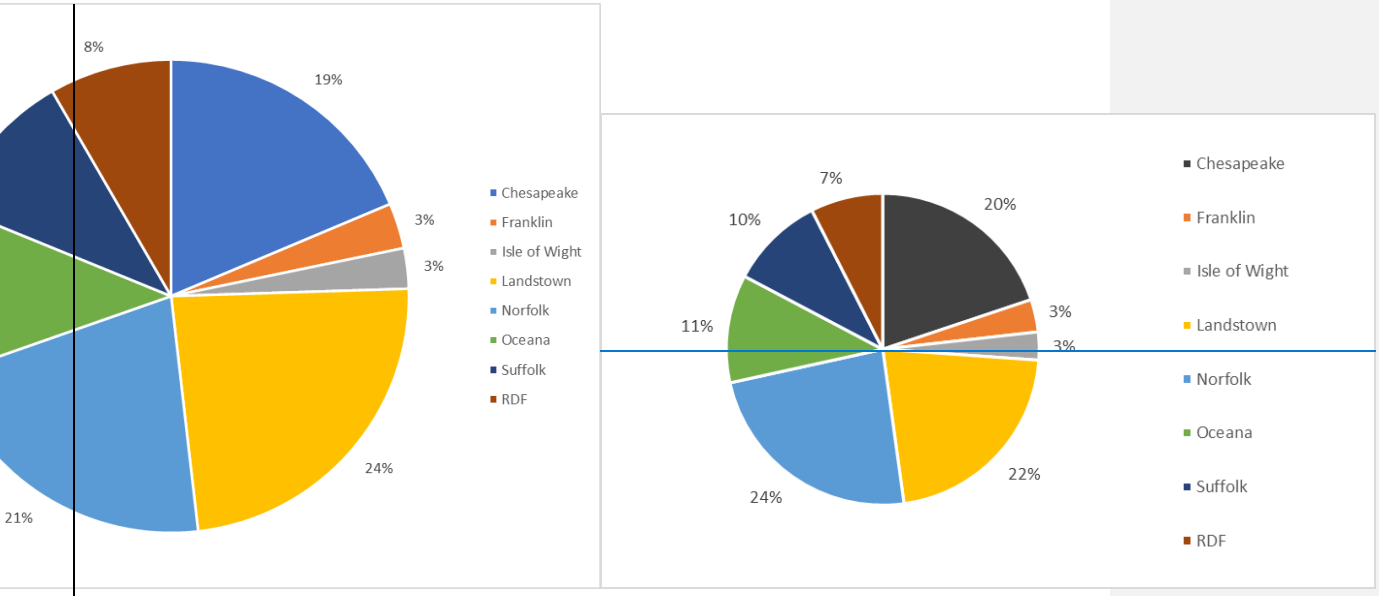


Figure 5. SPSA Transfer Station Location Map



*Ivor and Boykins Stations Transfer < 1% of Waste
Source: SPSA FY2023~~1~~ Operating and Capital Budgets

Figure 6. Relative Proportion of Waste Transferred – Fiscal Year 2021~~19~~

~~Table 12.~~Table 11. Transfer Station Solid Waste Totals

Transfer Station	Design Capcity (Tons/Day)	Tons Received						
		FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
Boykins[1]	50	650	650	650	650	650	650	650
Chesapeake	500	141,030	135,637	137,053	122,729	130,282	124,492	131,243
Franklin	150	22,674	21,760	21,817	20,966	22,162	21,755	21,839
Isle of Wight	150	22,230	23,930	20,247	20,326	19,056	18,703	19,452
Ivor[1]	50	650	650	650	650	650	650	650
Landstown	1,300	169,468	176,966	163,360	147,696	142,522	147,816	166,798
Norfolk	1,300	218,208	195,975	196,339	162,697	155,733	155,473	150,971
Oceana	500	83,961	74,736	76,298	70,037	73,650	72,280	81,533
Suffolk	500	65,075	65,101	70,607	66,767	64,084	68,542	73,772
RDF Facility[2]	N/A	151,300	142,343	141,794	93,326	49,135	57,454	58,655
Total	5,500	875,246	837,748	828,815	705,844	657,924	667,815	705,563

Source: SPSA FY2023~~1~~ Operating and Capital Budgets 1) Boykins and Ivor facilities average 650 tons/year. 2) The RDF facility is not a SPSA transfer station, but waste from Portsmouth and some waste from Chesapeake are delivered directly to the RDF facility.

2.5 SOLID WASTE DISPOSAL

Described in the following section are the solid waste disposal assets located in the planning area including the SPSA Regional Landfill, the Virginia Beach Landfill No. 2, the ~~Wheelabrator~~WIN Waste RDF WTE Facility, and other private disposal facilities.

2.5.1 Regional Facilities

2.5.1.1 RDF~~-~~ WTE Facility

2.5.1.1.1 Operations

The RDF WTE Facility, located in Portsmouth, Virginia opened in June 1987. The facility processes municipal and commercial solid waste into fuel, shredding the wastes and removing metals. The fuel is burned in lieu of coal at the adjacent Power Plant to produce steam and electricity. The steam is sold to the US Navy and the 60 megawatts of electricity is sold to the local power utility.

Solid waste is delivered to the RDF WTE Facility and dumped onto the enclosed tipping floor, which is roughly four acres in size. Front-end loaders push the waste toward the initial conveyor belts, while pulling out non-processible materials such as mattresses, lumber, tires and other bulky items. Hazardous wastes are also pulled out of the waste to be processed. Those items that are not processed are sent to a landfill for recycling and/or landfilling.

The waste placed on the conveyors is taken through a series of shredders, trommels, and sorting machines. The waste is broken down into smaller pieces that pass through magnetic separators in order to remove ferrous metals. Stations are positioned along the conveyor for teams of pickers who pull out large sticks or other non-processible objects prior to the waste being transported to the Power Plant. The result is small particles of solid waste that are in a more acceptable fuel form. These are sent by conveyor to the adjacent Power Plant that fuels the Norfolk Naval Shipyard.

The RDF WTE Facility was designed to process 2,000 tons of waste per day~~,~~ and was projected to divert just over 450,000 tons of material per year from the Regional Landfill. Ferrous metals are removed from the combustor ash produced from the RDF WTE facility.

WIN Waste has committed to operating the RDF WTE facility through June 2024, after which time it will close and begin the process of decommissioning and demolishing the power generating and RDF facility.

2.5.1.1.2 Ownership and Contractual Arrangements

In late 2007, SPSA advertised that it would entertain proposals from qualified interested parties for the sale of the RDF WTE Facility. In 2010, SPSA sold the facility to Wheelabrator Technologies (now ~~Wheelabrator~~WIN Waste) ~~Technologies~~. Under the terms of the sale and subsequent agreements, ~~Wheelabrator~~WIN Waste was contracted to ~~ill~~ accept and processes SPSA member community solid waste at the RDF WTE Facility through June 2027. Under the current agreement with ~~Wheelabrator~~WIN Waste, all MSW received at the Chesapeake,

Landstown, Oceana, and Norfolk transfer stations are delivered to the RDF plant. ~~Wheelabrator~~WIN Waste then delivers ash to the SPSA Regional Landfill. Waste that can't be processed at the RDF plant is delivered to private landfills. Waste from the Suffolk, Isle of Wight, Ivor, Franklin, and Boykins transfer stations can be delivered directly to the SPSA Regional Landfill. Waste from these transfer stations is currently being delivered directly to the SPSA Regional Landfill. Figure 7 depicts the current flow of waste in the region.

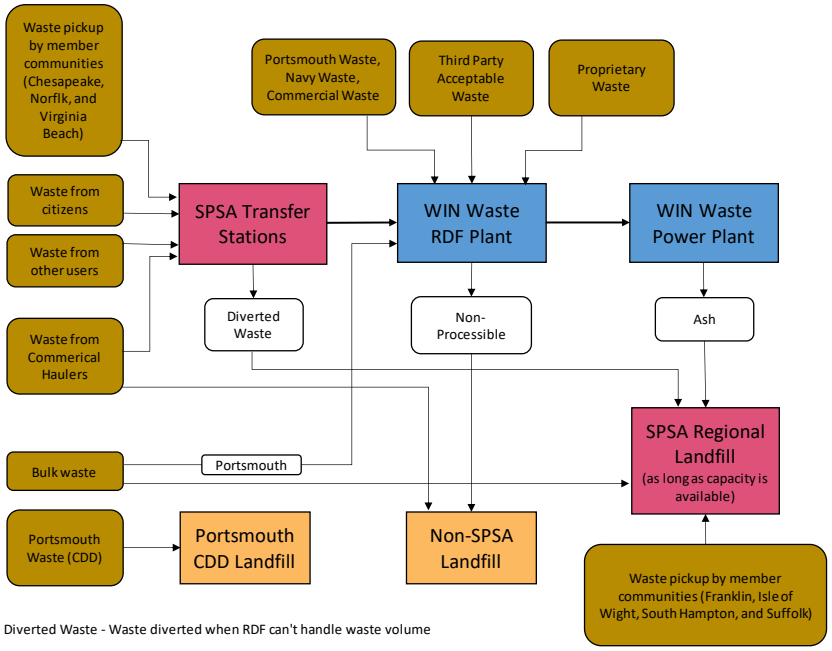


Figure 7. Flow of Municipal Solid Waste

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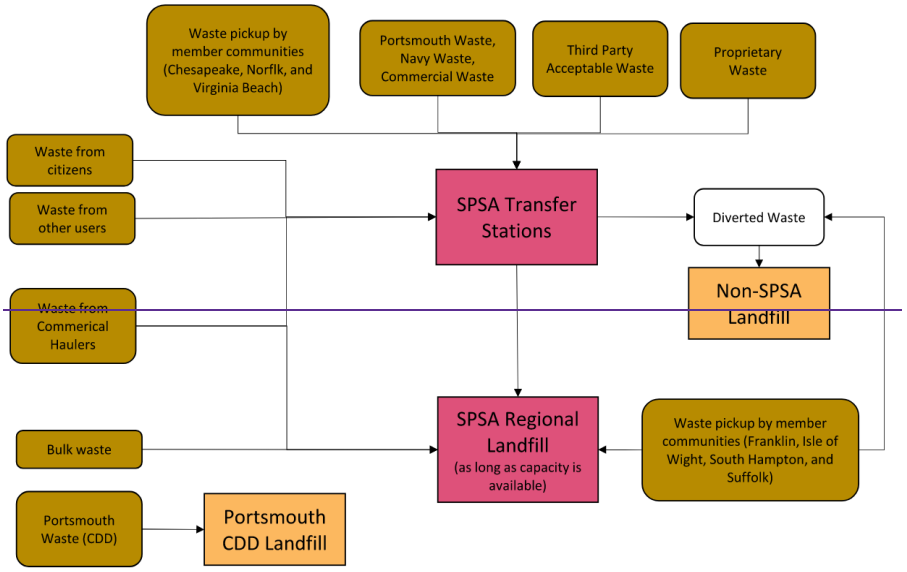

Diverted Waste - Waste diverted to preserve regional landfill airspace

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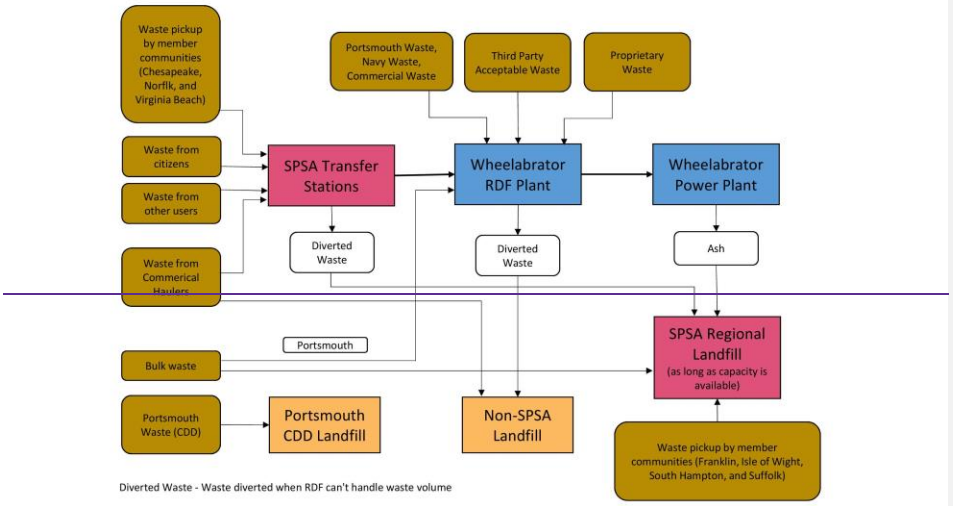

~~**Figure 7. Flow of Municipal Solid Waste through June 2024**~~

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In 2021, SPSA was notified by WIN Waste that the US Navy would not be extending its contract for the purchase of steam beyond June 30, 2024. In order for WIN Waste to continue to accept and process SPSA waste after this date, adjustments would be required to the contract terms and costs. SPSA has notified WIN Waste that it will cease delivery of waste to them after June 30, 2024. SPSA intends to dispose of the solid waste currently delivered to WIN Waste at the Regional Landfill beginning on July 1, 2024. WIN Waste has stated that it intends to close the RDF and power generating facility in July 1, 2024 and begin the decommissioning and demolition process of each facility that may require up to four years to complete. Solid waste collected by the City of Portsmouth will require operation of a transfer station to consolidate and transport solid waste to the Regional Landfill. Figures 8 depict the flow of waste in the SPSA system after June 30, 2024. SPSA may divert some waste from western communities based on transportation and disposal costs and conservation of disposal airspace, as necessary.

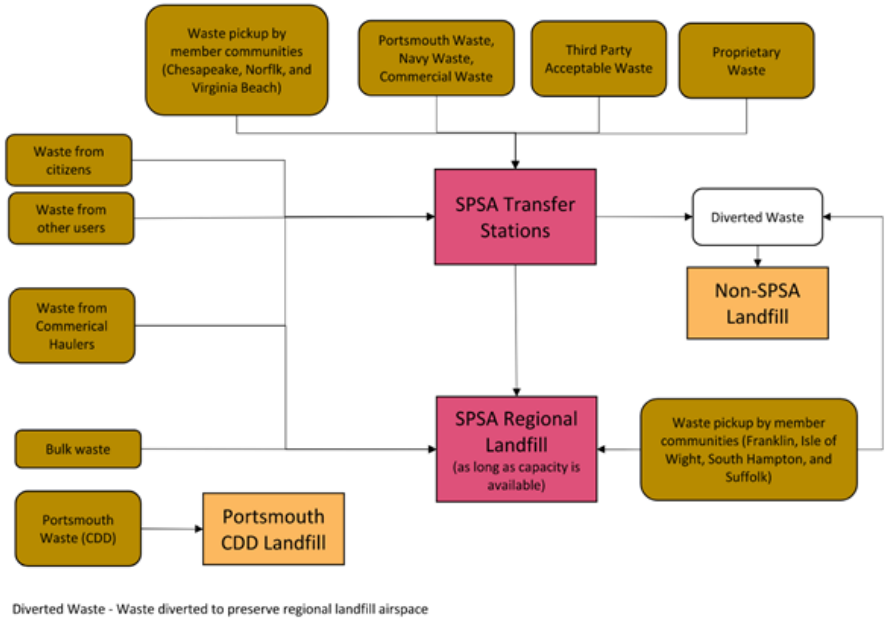

Figure 8. Flow of Municipal Solid Waste after June 2024

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2.5.1.2 Regional Landfill (SWP 417)

2.5.1.2.1 Estimated Site Life

~~2.5.1.2~~

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The SPSA Regional Landfill is located on 833 acres within the City of Suffolk near the intersection of US Route 13/58/460 and the US Route 58/460 Bypass. SPSA began disposing of waste in the Landfill in January 1985. Of the 833 acres, 188 acres are currently permitted and constructed landfill area (Cells I through VI). Cell VII was permitted in 2011. The landfill is currently open to the public six days a week.

Since 2015, the SPSA Regional Landfill has been utilized for disposal of around 300,000 tons per year and 350,000 CY per year of disposal airspace. Solid waste disposed of at the landfill consists of MSW, construction and demolition debris, ash and other wastes as well as clean fill. HRSD handles the treatment of leachate through their network of treatment facilities. Currently, the largest waste streams being received by the landfill is MSW from member communities to the west of the facility and ash from the WIN Waste Portsmouth ~~to Energy~~ facility that processes the remainder of the SPSA member communities MSW.

Beginning on July 1, 2024, SPSA will no longer be delivering municipal solid waste to ~~Wheelabrator~~WIN Waste ~~will no longer be accepting solid waste from SPSA~~ and all member community residential MSW will be transferred to the SPSA regional landfill for disposal. SPSA estimates that in July 2024 the Regional Landfill annual waste receipt will increase to ~~,~~ 491,000 tons of MSW and other wastes. At an assumed density of 1,400lbs/CY waste disposal could consume over 700,000 cubic yards of disposal air~~-~~space per year, which is twice the consumption rate that has been experienced in recent years.~~.~~

On an annual basis SPSA measures the volume of material already placed in the Regional Landfill by a topographic survey. HDR Engineering was hired by SPSA to perform airspace calculations utilizing information from the topographic survey. In the January 2022 Airspace Management Report, HDR Engineers, presented information concerning when the currently constructed landfill cells could possibly reach capacity depending on the quantity of waste disposed annually and the density achieved in waste being placed for disposal. In the report, assuming current conditions continue, HDR Engineers estimated that as of December of 2021 the Regional Landfill had less than 3.2 million cubic yards of permitted airspace available in Cells V and VI, of which just 2.6 million cubic yards of disposal airspace was readily recoverable. The recoverable airspace include filling in areas within existing operating area and not recovering airspace available on lower slopes due to settlement of waste. The 2022 report assessed the impacts associated with the shift in waste disposal away from WIN Waste in July 2024 and estimated that Cells V and VI would reach capacity as early as **January 2027**, if the waste placement approached 1,400 lb/CY.

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The capacity of the permitted but not yet constructed Cell VII is estimated to be 10,800,000 cubic yards. The construction of Cell VII is anticipated to commence in 2024 and be ready for receipt of waste by April 2026, according to SPSA. At a density of 1,400 lb/CY and a waste acceptance rate of approximately 500,000 tons per year, Cell VII would provide approximately 15 years of additional life or through 2042. However, the Cell VII capacity relies on overlap onto existing Cell V filled areas and the abandonment of the main landfill access road and relocation of critical infrastructure in that corridor including leachate forcemains, underground electric, fiber optic SCADA communication lines and stormwater drain lines. SPSA has stated that it intends to modify the Cell VII permit to include a separate phase of construction to delay the connection of Cell VII to Cell V and the relocation of this infrastructure. This adjustment to the phasing would reportedly truncate the effective capacity to between 8.6 million and 9.3 million cubic yards and reduce the effective life of Cell VII to 12 to 13 years.

The actual rate of landfill airspace consumption will depend on the rate of waste intake over time and the ability of the landfill operators to maintain the outside side slopes at the design elevations as the landfill settles. Per the Solid Waste Information and Assessment (SWIA) Report for CY 2020, the SPSA Regional Landfill had a reported 12,008,065 cubic yards of permitted capacity remaining and an expected remaining permitted life of 22 years. The SWIA report however did not yet contemplate the changes in waste volume and density associated with the closure of the WIN Waste facility in 2024.

~~The Landfill was originally designed to contain four disposal cells (Cells I through IV), which have now undergone the closure process. The permitted capacity of Cells I through IV is 25,800,000 cubic yards. In 1998, Cell V opened and provided the Landfill with additional capacity, extending the life of the Landfill through 2005. With the addition of Cell V, a final height of 205 feet above mean sea level can be achieved. A sixth landfill cell (Cell VI) opened in May 2006 west of Cell V. The permitted capacity of Cells V and VI is 12,200,000 cubic yards. The total permitted capacity of the Regional Landfill is 38,000,000 cubic yards.~~ **2.5.1.~~2~~3.2 Expansion Potential**

The Landfill was originally designed to contain four disposal cells comprising 106 acres (Cells I through IV), which have now undergone the closure process. The permitted capacity of Cells I through IV is 12,200,000 cubic yards. In 1998, Cell V (43.8 acres) opened and provided the Landfill with additional capacity, extending the life of the Landfill through 2005. With the addition of Cell V, a final height of 205 feet above mean sea level can be achieved. A sixth landfill cell, ~~(~~Cell VI, was permitted and ~~)~~opened in May 2006 west of Cell V with an area of 41.3 acres. The permitted capacity of Cells V and VI is 15,000,000 cubic yards.

~~The permitted capacity of Cell VII is approximately 10,800,000 cubic yards. The total permitted capacity of the Regional Landfill is 38,000,000 cubic yards.~~

~~On an annual basis SPSA measures the volume of material already placed in the Regional Landfill by a topographic survey. HDR Engineering was hired by SPSA to perform airspace calculations utilizing information from the topographic survey. In the February 2018 Airspace Management Report, HDR Engineers, presented information concerning when the currently constructed landfill cells could possibly reach capacity depending on the quantity of waste disposed annually and the density achieved in waste being placed for disposal. In the 2018 2022 report, assuming current conditions continue, HDR Engineers estimated that in January December of 2018 2021 the Regional Landfill had more than four million cubic yards of permitted airspace available for future waste disposal in Cells V and VI. Assuming waste can be placed at a density of 1,400 to 1,600 lbs/CY and all permitted airspace can be captured, Cells V and VI will not reach capacity in their current configuration until 2027 or 2028, respectively. The actual rate of landfill airspace consumption will depend on the rate of waste intake over time and the ability of the landfill operators to maintain the outside side slopes at the design elevations as the landfill settles. The 2022~~18 report has analyzed potential disposal capacity for Cell VII to be reached in 2041 at 1,280 lbs/CY density and 2048 at 1,670 lbs/CY density with incoming waste being 400,000 tons annually. Per the Solid Waste Information and Assessment (SWIA) Report for CY 202019, the SPSA Regional Landfill has 12,008,065 cubic yards of permitted capacity remaining and an expected remaining permitted life of 22 years.~~

In addition to Cells V and VI, the SPSA Regional Landfill includes a 56-acre lateral expansion known as Cell VII. Cell VII was approved by the Virginia Department of Environmental Quality on June 8, 2011. The capacity of Cell VII is approximately 10,800,000 cubic yards of operating airspace, as ~~permitted~~permitted, increasing the total permitted capacity of the Regional Landfill to 38,000,000 cubic yards.

As stated above, the SPSA Regional Landfill may only provide disposal capacity through 2037. In accordance with the Use and Support Agreements with the member communities, SPSA is required to satisfy the waste disposal needs for at least the next 20 years. The remaining capacity of the Regional Landfill is well short of this obligation.

In 2016, SPSA submitted an application to the City of Suffolk for a conditional use permit for the operation of Cell VII and construction and operation of a borrow area and vegetative waste composting in future Cells VIII and IX. As part of the City's permitting process, SPSA prepared a Master Plan to identify future areas of landfill expansion and borrow areas within the 525 acres remaining for expansion. SPSA's Master Plan includes 262.2 Acres of landfill waste boundary (Cells VII – XII), 54.1 acres of borrow area and stormwater management, and 16.3 acres of leachate management. The remaining 192.4 acres of the 525-acre parcel consist of the 98 acres dedicated to wetland mitigation as part of the Cell VII permits, property line and wetland buffers, gas pipeline easement, and access roadways and stormwater conveyance systems (see Figure 9).

According to SPSA, Cells VIII and IX would provide an additional 16 million cubic yards of waste disposal capacity and extend the life of the Regional Landfill through at least 2060 under current waste receipt of approximately 500,000 tons per year and waste density of 1,400 lbs/CY. The expansion would require increasing the solid waste boundary at the site by 129 acres and disturbance of approximately 110 acres of forested wetlands. SPSA has initiated preparation the Draft Environmental Impact Statement with the U.S. Army Corps of Engineers (USACE) for the proposed impacts in anticipation of filing a Joint Permit Application (JPA) to Virginia Marine Resources Commission (VMRC) who will distribute to the USACE and Virginia DEQ for consideration of Individual Permits under the Clean Water Act Section 404 and 401, respectively.

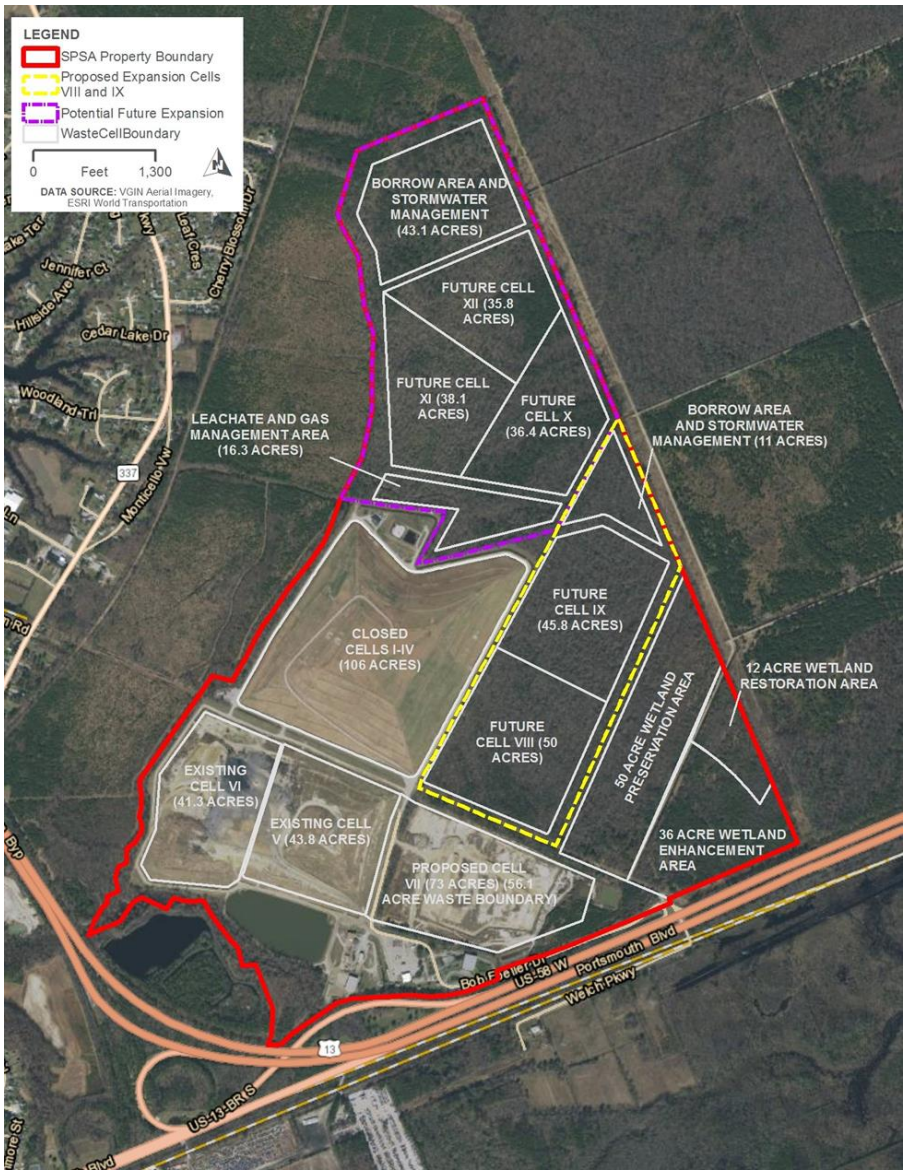

Figure 9. SPSA Regional Landfill Master Plan

~~. Without the permitted overlap onto Cell V, the available airspace would be reduced to approximately 8,600,000 CY.~~

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~~In November 2010, an agreement became effective between SPSA and Suffolk Energy Partners, LLC (SEP), that conveyed exclusive rights for all the landfill gas (LFG) at the Regional Landfill to SEP for capture and beneficial reuse. Since 1994 the Regional Landfill has utilized a gas recovery system. The system includes gas collection wells strategically located throughout Cells I – VI. In addition to the gas collection wells, the system includes gas collection piping, a flare system, condensate drains, a 3.2 MW power plant using four internal combustion engines, and a 2.3 mile pipeline to sell gas to BASF, a company located adjacent to the west side of the landfill. Landfill gas not supplied to BASF is used to generate electricity and some is flared as a last resort.~~

2.5.1.3 Virginia Beach Landfill (SWP 398)

The Virginia Beach Landfill No. 2 is a 300-acre facility in the western portion of the City. The current landfill area footprint is 104 acres. Waste generated within the City by Virginia Beach can be delivered in privately owned vehicles to the landfill free of charge. Ash from the RDF WTE facility is no longer delivered to Virginia Beach Landfill No. 2.

2.5.1.3.1 Capacity

The Virginia Beach Landfill has a permitted capacity of 15,331,000 cubic yards. In 2020, 21,051 tons were landfilled leaving ~~and~~ a remaining capacity of ~~3,575,000 cubic yards~~1,725,000 tons (DEQ ~~CY2019~~ CY2020 SWIA Report for Virginia Beach City – Landfill No. 2.)

2.5.1.3.2 Estimated Site Life

The Virginia Beach Landfill has an expected remaining permitted life of 7~~13~~ years (DEQ ~~CY2019~~ CY2020 SWIA Report for Virginia Beach City – Landfill No. 2.)

2.5.1.3.2 Expansion Potential

There are no plans to expand the landfill at this time.

2.5.1.4 Portsmouth CDD Landfill (SWP 041)

Portsmouth owns and operates a permitted construction, demolition, and debris (CDD) landfill located in the northern portion of the City known as the Craney Island Landfill. The facility only accepts CDD generated within the City.

2.5.1.4.1 Capacity

The Portsmouth CDD Landfill has a remaining permitted capacity of 1,~~926,444~~871,809.80 ~~cubic yards~~ton after landfilling 8,237 tons in 2020 (DEQ ~~CY2019~~ CY2020 SWIA Report for Portsmouth City – Craney Island Landfill)

2.5.1.4.2 Estimated Site Life

The Portsmouth CDD Landfill has an expected remaining permitted life of ~~142~~ 129 years (DEQ ~~CY2019~~ CY2020 SWIA Report for Portsmouth City – Craney Island Landfill)

2.5.1.4.2 Expansion Potential

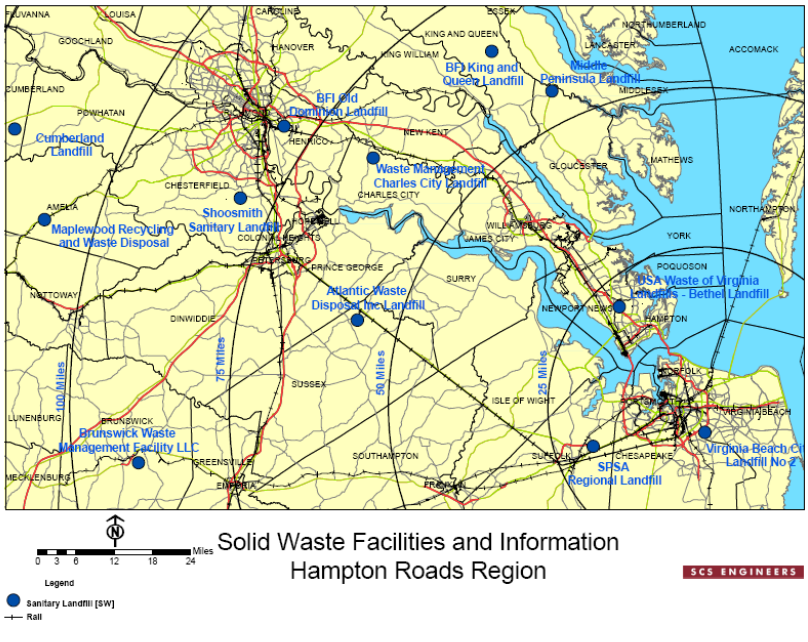
There are no plans to expand the landfill at this time.

2.5.2 Private Landfill Capacity

There are several privately-owned disposal facilities that have the potential for accepting the Region's solid waste. All of these facilities are outside the Region. A large majority of the Region's waste that does not go to the RDF WTE Facility is currently being disposed in Waste Management's Bethel and Atlantic Waste Disposal Landfills.

2.5.2.1 Location and Status

Figure 10~~8~~ shows the locations of most of the private disposal facilities with the approximate distance from the approximate center of the South Hampton Roads Region (intersection of I-264 and I-64).



~~Figure 8.~~Figure 10. Private Landfill Facilities in Eastern

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2.5.2.2 Capacity

As shown in Table 12, most of the private disposal facilities in eastern Virginia have sufficient capacity needed to accommodate the Region's waste flow through the planning period, should the proposed permitting of the expansion to the SPSA Regional Landfill not be successful.

The table summarizes the reported estimated total remaining permitted capacity, remaining reported permitted life, total projected remaining capacity and total projected life of each facility. As indicated, the total remaining permitted capacity and life of each facility were obtained from VDEQ's published annual report on solid waste management in Virginia (for calendar year ~~2018~~2020).

2.5.2.3 Haul Distance

Table 13 shows the hauling distance from each transfer station ~~(and the RDF WTE Facility)~~ in the SPSA network to each private waste disposal facility in eastern Virginia. It is anticipated that with the cessation of operations of the WIN Waste facility in 2024, that the existing RDF facility could potentially be used to transfer waste from the City of Portsmouth. In addition to hauling distance, it is recognized that traffic congestion would play a significant role in the costs to transport waste to private disposal facilities out of the SPSA service area.

2.5.2.4 Rail Access

Several of the out-of-region landfills listed in Table 12 and Table 13 have rail access and transfer capabilities for servicing New York, Maryland, and other out-of-state communities (Atlantic Waste, King George, Brunswick).

2.5.3 Survey of Solid Waste Disposal Sites

The Virginia Regulations for Solid Waste Management require that all known solid waste disposal sites (closed, inactive, and active) in the planning region be documented and recorded. Appendix B lists all solid waste management facilities in the Southeastern Virginia Region.

~~Table 13.~~Table 12. Out of Region Landfill Facilities

Landfill	Total Remaining Permitted Capacity (Tons)	~~2018~~ 2020 Waste Disposed (Tons)	Remaining Reported Permitted Life (Years)
Atlantic Waste Disposal - Sussex Co. (Waste Management)	43,943,186~~45,497,743~~	1,191,495~~1,279,485~~	5~~7~~4
BFI King and Queen Landfill (Republic)	~~6,957,506~~9,355,269	664,~~583~~318	~~17~~32.2
BFI Old Dominion Landfill (Republic)	~~8,186,234~~6,606,501	~~468,487~~494,130	~~24.3~~19
Brunswick Waste Management Facility	9,~~982,220~~569,031	~~211,151~~326,016	~~72~~40
King George Sanitary Landfill (Waste Management)	~~16,795,934~~15,520,811	~~1,699,050~~1,549,909	~~22~~20
Maplewood Recycling and Disposal (Waste Management)	~~16,397,337~~15,416,986	~~232,232~~963,719	~~148~~125.8
Middle Peninsula (Waste Management)	13,~~995,988~~227,433	~~519,785~~535,825	~~52~~48
Bethel Landfill (Waste Management)	~~22,467,607~~21,816,740	~~645,913~~771,358	~~80~~65
Charles City Landfill (Waste Management)	12,~~805,824~~026,818	~~614,549~~653,005	~~37~~33
Shoosmith Sanitary Landfill	~~20,050,000~~19,085,000	~~1,002,544~~923,347	~~30~~28

* Source: Virginia DEQ ~~2019~~ 2021 Annual Solid Waste Report for CY 202~~018~~

~~Table 14.~~Table 13. Potential Out-of-Region Long Haul Transportation Distance (From Current SPSA Transfer Stations)

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Transfer Station	Distance, Miles (One Way)											
	SPSA Regional Landfill	ATL Waste Disposal, Sussex County	WM Charles City County Landfill	Cumberland Landfill	WM Maplewood Landfill	WM Middle Peninsula Landfill	WM King George Landfill	BFI King & Queen Landfill	BFI Old Dominion Landfill	Brunswick Waste Management Facility	WM Bethel Landfill	Shoosmith Sanitary Landfill
Landstown	27	73	89	155	139	70	144	82	99	107	34	104
Oceanna	29	68	89	143	137	70	144	82	100	109	28	106
Norfolk	17	63	78	145	129	59	133	71	88	98	23	94
Franklin	30	42	72	118	104	96	146	109	77	53	60	67
Isle of Wight	25	34	64	116	101	58	140	71	72	76	23	65
Suffolk	0	46	85	128	117	65	152	78	95	81	29	77
Boykins	44	45	76	120	107	109	153	117	83	52	73	71
Ivor	25	21	52	102	89	72	127	85	60	64	36	53
Chesapeake	20	65	88	148	132	68	142	81	98	100	32	97
RDF Transfer - Portsmouth	13	59	87	141	125	68	142	80	98	94	31	90

3.0 SPECIAL WASTE

This section includes discussions of various waste types generated in the region that are categorized, processed, handled, or otherwise addressed separately or differently than the wastes that are addressed in the other sections of this plan. The following information describes in more detail the most prevalent types of special wastes handled throughout the region.

3.1.1 Household Hazardous Waste

Household cleaners, pesticides and fertilizers, fuels, paints, batteries, and pool chemicals that would otherwise go into the Regional Landfill are diverted from the waste stream through the SPSA Household Hazardous Waste (HHW) collection program. SPSA operates five HHW collection facilities. Virginia Beach has assumed responsibility for the HHW facility operation at the City's Landfill No. 2. The City of Norfolk also operates a household hazardous waste facility. The table below provides a breakdown of the materials collected at the SPSA facilities.

Table 14. ~~Table 3~~ Household Hazardous Waste Disposal Quantities

~~Table 17. Household Hazardous Waste Disposal Quantities~~

Waste Profile	Units	Quantity						
		FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
Paint Related Materials	Gallons	880	660	990	550	1,210	1,182	770 ~~1,210~~
High Btu (Waste fuel/solvents)	Gallons	1,650	1,650	1,485	1,100	1,925	2,715	2,970 ~~1,925~~
Detergents/Cleaners	Gallons	1,320	385	440	380	440	673	660 ~~440~~
Oxidizers	Gallons	3,850	3,150	4,400	3,500	4,000	3,075	3,850 ~~4,000~~
Pesticide Liquid	Gallons	2,420	2,035	1,705	1,650	2,035	2,852	3,410 ~~2,035~~
Pesticide Solid	Pounds	8,800	6,750	9,900	6,750	4,500	4,700	2,400 ~~4,500~~
Acids (Inorganic)	Gallons	385	275	220	220	385	343	385 ~~385~~
Antifreeze	Gallons	2,298	1,460	1,285	746	825	847	2,090 ~~825~~
Oil	Gallons	11,580	7,064	10,381	8,703	6,900	8,800	12,200 ~~6,900~~
Base Liquids	Gallons	385	220	110	236	55	154	220 ~~55~~
Base Solids	Pounds	110	55	0	0	0	55	110 ~~0~~
***Wet Cell Batteries**	Each	390	307	731	687	1,070	398	505 ~~1,070~~
****Dry Cell Batteries**	Pounds	1,100	700	700	1,050	1,400	1,200	800 ~~1,400~~
***Propane Cylinders**	Each	568	576	730	776	776	524	776 ~~776~~
***Other Cylinders**	Each	700	1,125	416	1,619	2,650	2,446	2,164 ~~2,650~~
Aerosol Cans	Pounds	600	6	2,400	2,000	1,200	1,850	2,750 ~~1,200~~
Mercury	Pounds	456	584	30	75	30	15	25 ~~30~~
Reactive (Calcium Carbide)	Pounds	0	1	0	0	0	2	0 ~~0~~
Cooking oil	Gallons	980	555	600	800	550	600	500 ~~550~~
Total Liquid	Gallons	21,898	14,304	17,216	14,385	14,325	18,166	23,205 ~~14,325~~

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Total Solid	Pounds	14,916	11,246	17,430	13,375	11,130	10,897	9,935~~11,130~~
		Source: SPSA | NR = not reported | *Totals do not include waste measured as "each", **dry cell battery weight is based on approximately 700 pounds per 55 gallon drum						

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3.1.2 Medical Waste

Virginia's medical waste management regulations have established standards for the storage, transportation and treatment of medical waste. Regulated medical waste may be stored, steam sterilized, incinerated or treated by an acceptable alternative mechanism in a permitted facility. The private sector is the primary supplier of Regulated Medical Waste (RMW) collection, treatment and disposal in the Region. There are two active RMW stream sterilizers in the Region. There are currently no permitted RMW incinerators or transfer stations in the Region. Table 15 lists the active and proposed RMW facilities in the Tidewater Region.

The purpose of medical waste regulations is to establish standards and procedures in order to protect public health and safety, and to protect the environment and natural resources. Under current permitting requirements, those facilities that handle and process wastes on site, (such as hospitals and college labs) and do not accept wastes from other institutions or businesses, are not required to obtain a permit or report quantities. They are however, required to maintain proper handling procedures and standards for the protection of public safety and health, and the environment.

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~~Table 18.~~Table 15. Regulated Medical Waste Facilities in the Tidewater Region

Facility Name	Location	Type	Operator
Old Dominion University	Norfolk	Steam Sterilizer (Unit 1)	ODU
Old Dominion University	Norfolk	Steam Sterilizer (Unit 2)	ODU
Curtis Bay Waste Services	Norfolk	Transfer and Storage Facility	Curtis Bay Waste Services

3.1.3 Construction and Demolition Debris

CDD consists of waste generated during construction, renovation, and demolition projects. The often bulky, heavy materials that make up CDD include wood, concrete, steel, brick, asphalt, gypsum, and plastic. CDD also includes salvaged building components such as doors, windows, and plumbing fixtures. Every time a building, road, or bridge is constructed, remodeled, or demolished, these materials are generated.

In addition, large volumes of CDD waste materials are generated during major storm events such as tropical storms and hurricanes. Historically, the region has experienced such storm events and has been forced to manage the resulting debris. The Region must plan and prepare for the management of large influxes of CDD in addition to the volumes of CDD waste that are generated as a result of normal construction and demolition activities within the area.

The EPA has estimated that the per capita generation of building-related CDD materials is 3.2 pounds per person per day.[3] This estimate was based on a series of calculations to estimate residential construction debris, nonresidential construction debris, residential demolition debris, nonresidential demolition debris, and renovation/remodeling debris. The EPA in continuing to study methods for estimating CDD generation.

Regional CDD generation may also be estimated using historical data from CDD waste disposed at landfills in the region. From 2015 to 2018, per DEQ Annual Solid Waste Reports, an average of 359,234 tons of CDD waste was disposed at four landfills in the region. These include the three landfills listed in Table 15~~7~~ and the SPSA Regional Landfill. Using these disposal figures, the Region's residents generate an estimated 1.6 pounds of CDD waste per day. While some CDD waste is recycled, it is likely that the rate of CDD generation in the Region is closer to 1.6 lbs/person/day than 3.2 lbs/person/day.

~~Table 19.~~Table 16. CDD Generation (Tons/Year)

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	2020	2030	2040
Regional CDD Generation (Rate of 3.2 lbs/person/day)	718,983	776,764	844,055
Regional CDD Generation (Rate of 1.6 lbs/person/day)	359,234	388,104	421,725

The majority of CDD handled and disposed of in the Region is collected by the private sector. There are three active CDD-only disposal facilities in the Region. However, the City of Portsmouth's landfill is currently intended for disposal of city produced CDD material only. The Centerville Turnpike CDD Landfill has a reported capacity of 3,~~732,641~~083,011 tons. The Higgerson-Buchanan Landfill has a permitted capacity of 1,376,917 tons. The Elbow Road CDD landfill on Centerville Turnpike in Chesapeake was closed in 2012.

~~Table 20.~~Table 17. Active CDD and Industrial Landfills

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Landfill	Facility Type	Total Remaining Permitted Capacity (Tons)	Waste Disposed (Tons)	Remaining Reported Permitted Life (Years)
City of Portsmouth Craney Island Landfill	CDD	1,~~997,702~~871,809	8,~~435~~237	1~~29.40~~
~~Higgerson-Buchanan Landfill~~Recycled Properties LLC	CDD	1,~~376,917~~258,161	~~26,457~~53,666	1~~70~~
Centerville Turnpike CDD Landfill	CDD	3,~~732,641~~083,011	~~321,819~~278,176	~~13.8~~10.8
International Paper LF No. 2 – Isle of Wight	Industrial	1,~~718,840~~658,555	~~89,670~~27,230	6~~57~~

[3] US EPA: Estimating 2003 Building-Related Construction and Demolition Materials Amounts

~~Table 20.~~Table 17. Active CDD and Industrial Landfills

Landfill	Facility Type	Total Remaining Permitted Capacity (Tons)	Waste Disposed (Tons)	Remaining Reported Permitted Life (Years)
John C. Holland Enterprises Inc	Industrial	797,379~~834,411~~	~~27,972~~20,688	4~~6.32~~

Source: Virginia DEQ 2021~~19~~ Annual Solid Waste Report for CY 2020~~18~~

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Landfills that are permitted for other types of waste (either MSW or Industrial) may also accept CDD, although a CDD only disposal facility would most likely have a lower tipping fee, and therefore disposal of CDD in a MSW or Industrial landfill may not be considered cost effective since CDD waste would be replacing MSW or Industrial waste air space. Non-CDD only permitted landfills that may accept CDD waste include the SPSA Regional Landfill (MSW) and the Holland Landfill (Industrial). Additionally, several of the MRFs listed in Table 7 recycle CDD waste.

The region has the total capacity to manage CDD waste over the planning period, however, CDD disposal capacity is limited. The region will need to explore options for managing CDD waste such as increased recycling, accommodating more CDD waste at the SPSA Regional Landfill, expanding the catchment area of the Portsmouth CDD landfill, or adding private CDD landfill capacity at existing or new landfills.

3.1.4 Industrial Sludge

Industrial Sludge is generated by a variety of businesses and industries in south Hampton Roads. The following major producers have, in the past, reported the volumes of sludge produced and the disposal methods.

- Smithfield Foods reported that it produced 62 wet tons of wet solids per day, 4 to 5 days per week. The waste was reportedly sent to the BFI landfill in Lawrenceville.
- City of Norfolk water treatment process generates sludge that is disposed of in the SPSA Regional Landfill.
- City of Norfolk 37th Street Water Treatment Plant sludge was piped directly to the solids handling section at HRSD's VIP wastewater treatment plant behind ODU.

The SPSA Regional Landfill typically receives 5,000 to 6,000 tons of sludge per year. Several private companies in Southeastern Virginia also collect, handle, and dispose of industrial sludge. The region does not have comprehensive information on the generation of industrial sludge.

3.1.5 Agricultural Waste

Agricultural wastes are by-products of farming and ranching that include crop harvesting waste and manure. According to the 2017 Census of Agriculture, the amount of land used for farming in the region is decreasing in some localities and increasing in others:

- **Chesapeake.** Land in farms is down 18 percent from 2012 to 36,796 acres. Approximately 88 percent is cropland and 7 percent is woodland.

- **Isle of Wight.** Land in farms is up seven percent from 2012 to 80,672 acres. Approximately 64 percent is cropland and 24 percent is woodland.

- **Southampton.** Land in farms is down eight percent from 2012 to 141,942 acres. Approximately 69 percent is cropland and 26 percent is woodland.

- **Suffolk.** Land in farms is up 14 percent from 2012 to 79,035 acres. Approximately 73 percent is cropland and 17 percent is woodland.

- **Virginia Beach.** Land in farms is down 11 percent from 2012 to 23,350 acres. Approximately 80 percent is cropland and 10 percent is woodland.

A rural waste characterization study conducted for Washington State Department of Ecology attempted to quantify and characterize the types of waste disposed, recycled, or reused for four agricultural groups (field crops, orchards, vegetables, and livestock). The study found that less than 1% of the waste generated by these agricultural groups was landfilled. The primary means of handling waste generated by agriculture was through beneficial use, such as replenishment of soil nutrients.

4.0 WASTE MANAGEMENT SUMMARY

This section of the plan provides a summary of the waste management system that exists in the region.

4.1 RECYCLABLES

Portsmouth is the only locality in the Region that conducts curbside recycling itself. The other communities in the region have all contracted with private firms or are negotiating private contracts for curbside and/or drop-off facility services.

Other public and private programs exist within the region for the recycling of non-curbside collected materials: used oil, batteries, appliances, electronics, and tires.

4.2 YARD WASTE

Yard waste in the region is managed through a variety of mechanisms:

- Some residents recycle yard debris in their own yards (grasscycling and/or composting)
- Several municipalities collect grass, clippings, and leaves at the curb. Collected material is either sent for composting at a private facility or disposal within the SPSA system.

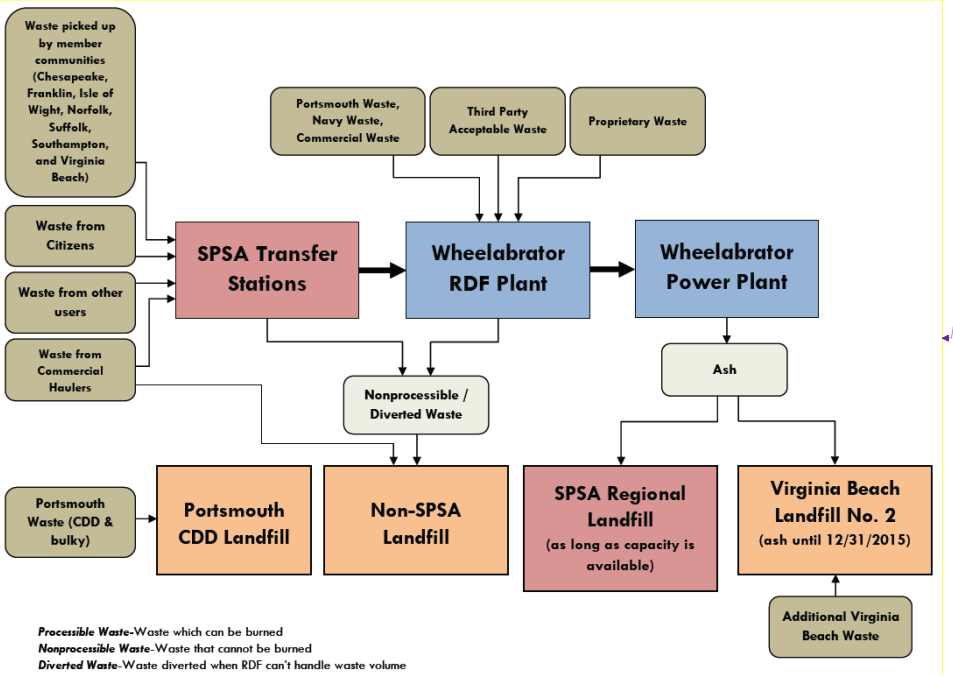
However, no regionally-owned composting option is available.

4.3 MUNICIPAL SOLID WASTE

With the ~~Due to the~~ transfer of the RDF WTE Facility to ~~Wheelabrator~~Wheelabrator (now WIN Waste in 2010, the flow of waste in the system ~~has~~ changed since the last solid waste management plan was written. A chart of municipal solid waste flow prior to 2016 is provided in Figure 11~~9~~. In 2016 ash and municipal solid waste from Virginia Beach were no longer disposed of at the Virginia Beach Landfill No. 2. A chart of municipal solid waste flow after 2016 and up until the closure of the WIN Waste facility in June 2024 is include as Figure 12. The anticipated flow of waste after June 2024 is depicted in Figure 13.

4.4 CONSTRUCTION AND DEMOLITION DEBRIS (CDD)

Currently, most CDD generated in the Region is sent directly to CDD landfills, both in and outside the Region. The private CDD landfills accept material from a wide area, including out-of-state sources. Privately owned collection firms operating in the Region provide CDD collection services. Construction firms are responsible for procuring CDD collection containers (e.g., dumpsters) and services at their building sites. Most companies collect CDD from the construction sites for transport directly to a CDD disposal facility. CDD generated by the City of Portsmouth is sent to the Portsmouth Landfill (Craney Island) for disposal.



~~Figure 9.~~ Flow of Municipal Solid Waste Prior to 2016

Figure 11.

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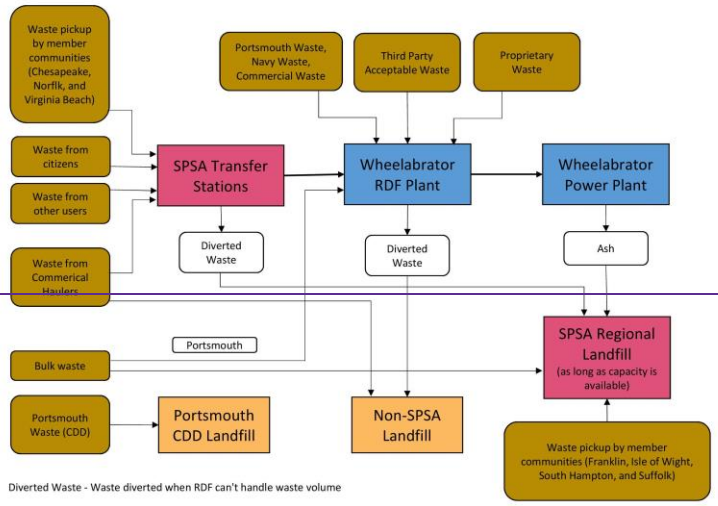

Figure 10. Current Flow of Municipal Solid Waste

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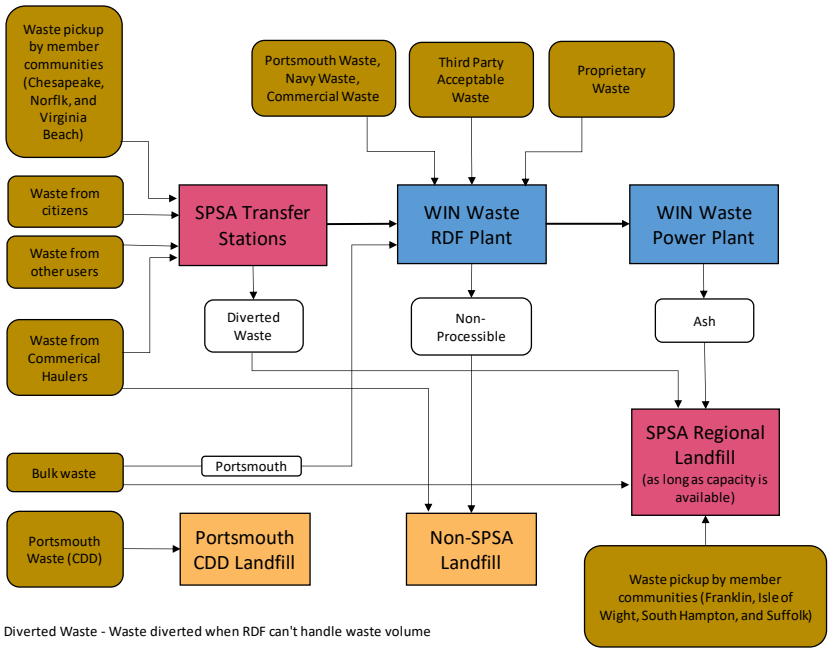

Figure 12. Flow of Municipal Solid Waste through June 2024

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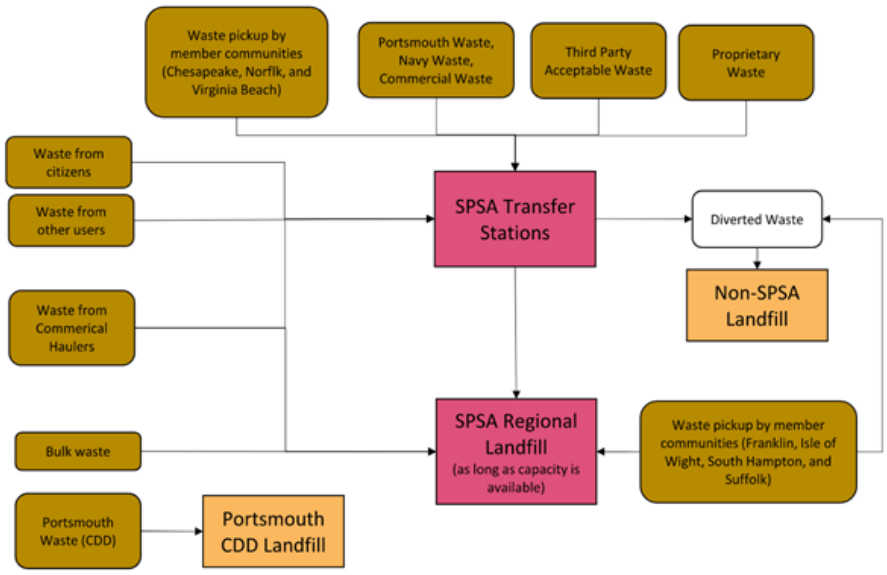

Figure 13. Flow of Municipal Solid Waste after June 2024

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5.0 FUTURE MUNICIPAL SOLID WASTE MANAGEMENT NEEDS

5.1 INTRODUCTION

While the Region has programs in place and facilities are available for management of the current waste stream, the quantity of waste generated in the Region will change with time. This means that the Region's programs will be required to change in response. To provide the Region with an understanding of these projected changes, it was necessary to document current waste generation and project future waste generation.

5.2 MUNICIPAL SOLID WASTE

Projections of municipal solid waste generation were calculated by applying an EPA per capita waste generation rate to regional population projections. As part of its Sustainable Materials Management program, the EPA periodically develops per capita MSW generation rates, measured in pounds per person per day. The EPA's *Advancing Sustainable Materials Management: 2018~~5~~ Factsheet* provides per capita generation rates developed every five years from 1960 to 2018~~15~~. The rate was as low as 2.68 lbs/person/day in 1960 and peaked at 4.90~~74~~ lbs/person/day in 2018~~00~~. The rates from 2010 to 2017 were around 4.5~~most recent rate from 2015 was 4.48~~ lbs/person/day. EPA has indicated that the generation rate jumped in 2018 due to their enhancement in its food measurement methodology. ~~Since 1990, the rate has stayed relatively steady, with an average over that period of 4.575 lbs/person/day.~~ To make projections for regional MSW generation, the per capita generation rate of 4.95~~750~~ lbs/person/day was applied to regional population projections developed by the HRPDC for the years 2020, 2030, and 2040.

~~Table 21.~~Table 18. MSW Generation Projections for Southeastern Virginia (Tons/Year)

	2020	2030	2040
Chesapeake	223,127 ~~208,328~~	250,545 ~~233,927~~	281,331 ~~262,671~~
Franklin	8,285 ~~7,736~~	8,945 ~~8,352~~	9,658 ~~9,017~~
Isle of Wight County	38,228 ~~35,693~~	46,334 ~~43,261~~	56,159 ~~52,434~~
Norfolk	220,182 ~~205,578~~	223,282 ~~208,472~~	226,424 ~~211,406~~
Portsmouth	86,219 ~~80,500~~	87,014 ~~81,243~~	87,815 ~~81,991~~
Southampton County	97,776 ~~17,234~~	126,391 ~~19,155~~	163,379 ~~21,291~~
Suffolk	18,458 ~~91,291~~	20,516 ~~118,008~~	22,803 ~~152,543~~
Virginia Beach	408,666 ~~381,561~~	426,394 ~~398,112~~	444,889 ~~415,381~~
Total	**1,100,942 ~~1,027,921~~**	**1,189,420 ~~1,110,529~~**	**1,292,460 ~~1,206,735~~**

6.0 RECYCLING RATE

The following provides an overview of the Virginia recycling requirements and the recycling rates achieved by the Region's recycling programs.

6.1 VIRGINIA REQUIREMENTS FOR SOLID WASTE MANAGEMENT PLANNING, RECYCLING, AND ANNUAL REPORTING

In 1989, the Virginia General Assembly adopted legislation that laid the foundation for solid waste management planning, requiring that solid waste management plans be developed at the local or regional level. After July 1, 2007 no permit for a new sanitary landfill, incinerator, or waste-to-energy facility or for an expansion of an existing sanitary landfill, incinerator, or waste-to-energy facility will be issued until the solid waste planning unit within which the facility is located has an approved solid waste management plan. Regulations governing the development and submittal of solid waste management plans are provided in 9VAC20-130-10 et seq.

This legislation also established recycling rates for communities. The established rates were: 10 percent by 1991, 15 percent by 1993, and 25 percent by 1995. Each county, city, town, or regional authority was required by the legislation to establish recycling programs that would meet these goals.

Legislation introduced in 2006 provided for a two-tiered recycling mandate: 15 percent or 25 percent. The recycling rate that must be achieved by a community is dependent upon two factors: population density and unemployment rates. Localities or regions (called Solid Waste Planning Units or SWPUs) with population densities less than 100 persons per square mile or with an unemployment rate 50 percent higher than the statewide average are required to meet the 15 percent mandated recycling level, all others are required to continue to meet the 25 percent recycling mandated level.

The regulations for solid waste management plans require that the plan describe how the mandated recycling rate will be met or exceeded. Additionally, Section 9VAC 20-130-165 D requires that every city, county, town, or SWPU submit the data and calculations to document the recycling rate for the preceding calendar year to the Department of Environmental Quality.

Virginia uses the following formula for calculating the recycling rate:

Recycling Rate = (PRMs + Credits) ÷ (PRMs + Credits + MSW Disposed)

Where:

- **"Principal recyclable materials (PRMs)"** means paper, metal, plastic, glass, commingled yard waste, wood, textiles, tires, used oil, used oil filters, used antifreeze, batteries, electronics, or material as may be approved by the director.

- **"Municipal solid waste (MSW)"** means waste that is normally composed of residential, commercial, and institutional solid waste and residues derived from the combustion of these wastes. MSW generated equals the sum of PRMs recycled and MSW disposed. (MSW disposed equals the amount of MSW delivered to landfills, transfer stations, incineration and waste-to-energy facilities).

  - "Residential waste" means any waste material, including garbage, trash and refuse, derived from households. Households include single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds and day-use recreation areas. Residential wastes do not include sanitary waste in septic tanks (septage) that is regulated by other state agencies.

  - "Commercial waste" means all solid waste generated by establishments engaged in business operations other than manufacturing or construction. This category includes, but is not limited to, solid waste resulting from the operation of stores, markets, office buildings, restaurants and shopping centers.

  - "Institutional waste" means all solid waste emanating from institutions such as hospitals, nursing homes, orphanages, and public or private schools. It can include regulated medical waste from health care facilities and research facilities that must be managed as a regulated medical waste.

- **Credits** may be added to the recycling formula, provided that the aggregate of the credits does not exceed five percentage points of the annual municipal solid waste recycling rate achieved for each solid waste planning unit:

  - A credit of one ton for each ton of any non-municipal solid waste material that is recycled (e.g., industrial waste, construction and demolition debris).

  - A credit of one ton for each ton of any solid waste material that is reused.

  - A credit of one ton for each ton of recycling residue disposed in a landfill. "Recycling residue" means the (i) nonmetallic substances, including but not limited to plastic, rubber, and insulation, which remain after a shredder has separated for purposes of recycling the ferrous and nonferrous metal from a motor vehicle, appliance, or other discarded metallic item, and (ii) organic waste remaining after removal of metals, glass, plastics and paper which are to be recycled as part of a resource recovery process for municipal solid waste resulting in the production of a refuse derived fuel.

  - A credit of two percentage points of the minimum recycling rate mandated for the solid waste planning unit for a source reduction program that is implemented within the solid waste planning unit. "Source reduction" means any action that reduces or eliminates the generation of waste at the source, usually within a process. Source reduction measures include process modifications, feedstock substitutions, improvements in feedstock purity, improvements in housekeeping

and management practices, increases in the efficiency of machinery, and recycling within a process. Source reduction minimizes the material that must be managed by waste disposal or nondisposal options by creating less waste. "Source reduction" is also called "waste prevention," "waste minimization," or "waste reduction."

- A credit of one ton for each inoperable vehicle for which a locality receives reimbursement from the Virginia Department of Motor Vehicles under §46.2-1407 of the Code of Virginia.

If the SWPU's annual recycling rate falls below the minimum rate, the SWPU is required to submit a recycling action plan (RAP), or its approved solid waste management plan may be revoked. The RAP must identify specific elements of the recycling program that will be changed or improved in order for the SWPU to reach its recycling rate. The RAP requires both a commitment by the SWPU to provide resources necessary to improve its program, as well as a timeline for achieving the program elements. The RAP must be adopted by the administrative governmental board(s) for all localities covered by the Solid Waste Management Plan, and then approved by DEQ. Regular reporting on the progress made on the RAP elements is required.

6.2 HISTORIC RECYCLING RATES

Beginning with calendar year 2001, Virginia required that all SWPUs submit annual recycling rate reports. The state uses these reports to establish a statewide recycling rate. The table below provides recycling rates for all SWPUs that reported generating more than 300,000 tons of MSW in 2018. South Hampton Roads has consistently exceeded the state's requirement of 25 percent. The region's recycling rate for CY 20202018 was 45.59.9%.

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Table 19. ~~Table 19.~~ Regional Recycling Rates (%), 2014 -20202018

Region	CY2014	CY2015	CY2016	CY2017	CY2018	CY2019	CY2020
Central Virginia Waste Management Authority SWPU (Richmond Area)	57.7	58.8	58.9	59.0	58.7	59.1	58.1
Fairfax County SWPU	48.3	49.6	50.0	48.8	49.5	47.0	49.6
Loudon County SWPU	38.5	44.5	40.0	37.1	34.1	33.0	32.2
Newport News SWPU	39.6	40.7	38.2	44.4	57.0	52.8	53.3
Northern Shenandoah Valley Regional Commission SWPU	41.4	49.7	45.9	56.6	49.4	44.1	37.0
Prince William County SWPU	38.7	33.7	36.8	34.6	35.3	38.2	33.5
Region 2000 SWPU (Lynchburg Area)	41.5	39.1	35.7	40.1	38.0	43.6	47.6
Southeastern Public Service Authority SWPU (South Hampton Roads)	30.8	31.7	34.7	36.7	49.9	35.9	35.8
Virginia Peninsulas Public Service Authority SWPU	27.7	36.5	34.6	26.4	29.3	30.8	27.9

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(Virginia and Middle Peninsulas)							
Statewide	**42.5**	**44.2**	**42.6**	**42.8**	**46.1**	**43.2**	**45.5**

Source: Virginia DEQ Annual Recycling Summary Report for calendar years 2014 through 2020~~18~~.

7.0 LITTER CONTROL

The Region's localities all participate in the Clean Community Program of the Commonwealth. They utilize state grants, when available, together with local funding, other grants and private initiatives in operating their local litter control and related educational programs. The Virginia Beach Clean Community Commission is now a City Council appointed commission with administrative support from Public Works, Waste Management Division. Programs and events include; adopt a spot, storm drain marker, Clean the Bay Day and support for Earth Day. The eight cities and counties that are members of SPSA also participate with SPSA, the Virginia Peninsulas Public Service Authority and their local government counterparts on the Peninsula in HR CLEAN, which is the regional litter control and recycling education program. It operates through the HRPDC. Among the initiatives undertaken by HR CLEAN is an effort to develop an educational program for members of the law enforcement community and judicial system about littering, its control, and the need for more stringent enforcement of anti-littering statutes.

The Cities of Chesapeake, Norfolk, Portsmouth, and Suffolk are member affiliates of the Keep America Beautiful (KAB) program. Each affiliate provides opportunities to the public in areas of education, beautification, and litter control programs. To be an affiliate of KAB, minimum standards and reporting are required. One of the programs being offered to volunteers is the Great American Clean-up where citizens participate in litter clean-ups in their neighborhoods and public areas. The Great American Cleanup takes place annually from March through May.

In addition to the KAB programs, the localities in Southeastern Virginia support and participate in clean-up activities supported by private organizations, such as the Chesapeake Bay Foundation, Lynnhaven River Now, Riverkeepers and other private foundations. They also support and participate in the various "Adopt" programs, which operate under the auspices of the Virginia Departments of Conservation and Recreation and Transportation. They also participate in the various Stewardship programs, which are sponsored by the Governor and the Secretary of Natural Resources.

Examples of these cooperative programs include:

- The Chesapeake Bay Foundation (CBF) promotes volunteer opportunities throughout the region. Along with local coordinators, CBF organizes clean up events not only on the Bay, but at nearby rivers, waterways, under bridges, and the oceanfront.

- Each locality has the opportunity to participate in the annual "Clean The Bay Day," which takes place the second Saturday of June in Norfolk, Chesapeake, Gloucester, Newport News, Poquoson, Portsmouth, Suffolk, and Virginia Beach. Most of the waste collected is put into the waste stream while a small percent might be recycled.

- Similar "Adopt" programs operate under a state umbrella~~,~~ but are administered locally. The Adopt-A-Highway Program, the first of such "adoption" efforts, is an anti-litter and roadside enhancement campaign intended to promote pride and local ownership in our beautiful state. It allows individuals and organized groups of citizens and/or businesses to work in partnership with the Commonwealth by

"adopting" a section of state highway and agreeing to help take care of it. This program offers organizations a way to contribute to their community and state, as well as generate publicity for their efforts. A number of localities and private organizations also participate in the Adopt-A-Waterway Program, which is facilitated by the Department of Conservation and Recreation. Due to the overwhelming success of these efforts, HR CLEAN promotes Adopt Hampton Roads as a way to encourage involvement in Adopt-A-Spot and Adopt-A-Waterway programs. These efforts have flourished region wide.

- In several instances, the Sheriffs in Hampton Roads localities utilize inmate labor to clean up areas of highways throughout the region.

Additionally, in an effort to curb litter and non-point source pollution, each locality requires citizens to secure waste set out for collection.

8.0 SOLID WASTE NEEDS ASSESSMENT

8.1 EVALUATION OF SOLID WASTE MANAGEMENT

SPSA periodically employs a consultant to conduct a comprehensive survey and report. The report evaluates SPSA's fiscal and operational health. The report summarizes current and recent solid waste collection data for each of SPSA's facilities, including the Regional Landfill, the RDF WTE Facility, and transfer stations. The report also describes the current and projected future condition and capacities of these facilities.

Regarding solid waste received at each transfer station, the individual local governments decide on solid waste collection routes. In deciding these routes, the local governments will bring solid waste from different areas within their jurisdiction to the most appropriate transfer station. In addition, private solid waste collection companies make similar decisions. These decisions in turn will affect the amount of solid waste any transfer station receives. SPSA itself has no direct control over the decisions of these entities but works with these entities to plan and identify needed new improvements and facilities.

SPSA will continue to rely on conducting this type of evaluation and assessment of its solid waste management system to improve its ability to meet the solid waste management needs of the region.

8.2 NEEDS ASSESSMENT

The existing solid waste management system was reviewed within the context of the solid waste management hierarchy to identify needs to be addressed during the development of this plan and its future implementation. This assessment is presented according to the solid waste management hierarchy. Identified needs that fall outside of the hierarchy, such as solid waste transfer, are presented at the end of the section.

8.2.1 Source Reduction and Reuse

8.2.1.1 Current Conditions

There are four basic methods for waste reduction:

- Reduce consumption by using product alternatives that generate less waste.
- Reuse products for their original or compatible purposes.
- Increase the durability or lifetime of products.
- Decrease the amount of material used to produce each product or reduce product packaging.

Waste reduction is generally not as well documented or understood as recycling and requires extensive education. Additionally, some waste reduction tactics, especially those involving

product and packaging waste, are controlled by economic, political, and educational forces beyond city and county control.

Waste reduction is supported in the region through various programs and offerings. Many promotional materials and outreach programs exist to spread awareness of waste reduction and recycling. Through askHRgreen, the HRPDC runs several environmental education programs focused on source reduction. These include a single-use plastics campaign, straw-free Earth Day campaign, and grants to schools regarding measures to reduce plastic use. In addition, through the HRDPC Recycling and Beautification Committee, askHRgreen conducted a waste reduction media campaign in FY2019 called Choose to Refuse. The campaign included paid media, outreach materials, public relations, and social media efforts to raise awareness about waste reduction. The Committee's message to the region's residents was that we should all choose to reduce our waste production first before focusing on what can or cannot be recycled.

Oher material donation and reuse opportunities currently available include:

- Numerous private and non-profit businesses operate secondhand material outlets throughout the county.
- Websites such as www.craigslist.org provide an internet-based forum to buy, sell, and exchange secondhand products locally.
- The cities and counties sponsor public surplus sales of materials and equipment no longer needed by those agencies but still usable.
- Some of the member jurisdictions have developed internal goals for buildings that meet Leadership in Environmental Engineering Design (LEED) standards. Some of the jurisdictions have LEED certified buildings.

8.2.1.2 Needs

Waste reduction could be further encouraged by addressing the following needs:

- Residents and businesses are not exposed to education and promotion programs focusing on alternatives to toxics and proper disposal of household hazardous waste.
- According to the most recent EPA estimates, yard waste accounts for 13 percent of the waste stream; food scraps accounts for an additional 13 percent. The cost of home composting bins or mulching mowers may be a deterrent to residents.
- Businesses do not have access to technical assistance and outreach addressing waste reduction opportunities.
- Agencies could adopt procurement policies that encourage the purchase of products made from recycled-content materials.

8.2.1.2.1 Waste/Material Exchange

Materials or waste exchanges are not new. The concept began in Europe and spread to North America in the late 1970s. A waste exchange acts as a liaison between waste generators and potential users. Some exchanges are operated by states or local governments, others are wholly private, for-profit businesses. The exchanges vary in terms of area of service and the types of commodities exchanged. In general, waste exchanges tend to handle hazardous materials and industrial process waste while materials exchanges handle nonhazardous items. Information on several waste exchanges are provided in Table 20.

Increasingly, waste exchanges are making use of the internet to create online databases and eliminate printed catalogs. Private exchanges frequently share information with one another.

Waste/material exchanges operate much like “classified ads.” Businesses, offices, schools, and individuals "advertise" their surplus/unwanted materials, or materials they want to get, by completing an electronic listing form. Once the form has been completed and submitted, the listing is posted on the website. Users can look for and find materials by browsing or searching the materials categories. Users interested in trading posted materials then contact each other directly.

In many instances, sites offer school donation programs. These programs provide the opportunity for businesses to list materials specifically available to schools. Since schools are working with limited resources.

Web-based materials exchange opportunities are limited in the Region. HRPDC could consider establishing a regionally-based waste or material exchange for businesses or residents.

Table 20. Waste/Material Exchanges

State Waste Exchanges
Alaska Materials Exchange (AME) http://www.greenstarinc.org/ame/ameindex.php The AME was developed in 1994 as a partnership among the Alaska Department of Environmental Conservation, ARCO-Alaska, BP Exploration, Alyeska Pipeline Services, the Anchorage Chamber of Commerce, and the U.S. EPA. From 1994 until 2003, the AME was a quarterly printed catalog mailed to users across the State. In 2003, the AME was transferred to Green Star and updated to an interactive web-based system.
California Materials Exchange (CalMAX) http://www.ciwmb.ca.gov/calmax CalMAX, maintained by the California Integrated Waste Management Board, is a free service designed to help businesses find markets for materials they have traditionally discarded. CalMAX published quarterly catalogs from 1992-2005; however, in an effort to reduce the use of paper and streamline the administrative process, CalMAX made the decision to publish the last catalog in the summer of 2005 and now operates exclusively as an online exchange service. The CalMAX database categorizes materials into 15 separate classifications and is accessible 24 hours a day through the CalMAX Web site.
Ohio's Materials Exchange (OMEx) http://www.myomex.com/ OMEx publishes no-cost materials wanted and available ads for the purpose of facilitating exchanges for users who then work out the details of payment, transportation and storage. Ads are placed, and updated, by the listing entities. OMEx began in 1998. It is administered by the Association of Ohio Recyclers and funded through the Ohio Department of Development's Ohio Energy Office. Waste Alternatives, Inc., of Mount Vernon, OH, services and maintains the listing program while The Internet Professional administers the website.
Indiana Waste Exchange (IMX) http://www.in.gov/idem/imx/index.html The IMX is maintained by the Indiana Department of Environmental Management, Office of Pollution Prevention and Technical Assistance. The IMX is an electronic bulletin board that aids in the dissemination of information on surplus and waste materials either available from or wanted by industrial and commercial entities. IMX operates through the IMX Listserv. Through this listserv, users receive e-mail information about new listings on a regular basis. Listed materials are organized into 17 individual categories.
Iowa Waste Exchange (IWE) http://www.iowadnr.gov/waste/iwe/index.html The mission of the IWE is to provide Iowa industries with smart waste management. The IWE is a free, confidential program that actively promotes the reuse and recycling of Iowa business and industry by-products and wastes. The program operates out of six regions with a coordinator assigned to each region. The IWE is part of and funded by the Iowa Department of Natural Resources. Since 1990 the IWE has matched over 2.6 million tons of materials.
Minnesota Materials Exchange http://www.mnexchange.org/ The Minnesota Materials Exchange program is coordinated by the Minnesota Technical Assistance Program (MnTAP). The program focuses on items that are commonly used in a business or organizational setting, rather than a household. Most things are available free or at a low cost. Users are sent emails (2 per month) identifying the newest available and wanted items. MnTAP, a nonregulatory program that helps businesses reduce waste, is funded primarily by a pass-through grant from the Minnesota Pollution Control Agency's Prevention and Assistance Division to the University of Minnesota, School of Public Health, Division of Environmental Health Sciences.
Montana Material Exchange http://www.montana.edu/mme/ The Montana Material Exchange (MME) maintains and distributes listings of materials available and materials wanted from individuals and local and international companies. The site is maintained by the Montana State University Extension Service, Pollution Prevention Program, in partnership with the Montana Chamber of Commerce.
Nebraska Materials Exchange Program http://www.knb.org/exchange.html Keep Nebraska Beautiful offers this program. Since its inception in the Fall of 1994, the number of materials listed and exchanged has grown tremendously.
Ohio's Materials Exchange (OMEx) http://www.myomex.com/

Table 20. Waste/Material Exchanges

OMEx publishes no-cost materials wanted and available ads for the purpose of facilitating exchanges for users who then work out the details of payment, transportation and storage. Ads are placed, and updated, by the listing entities. Information provided through OMEx is supplied by the listing party. OMEx began in 1998. It is administered by the Association of Ohio Recyclers and funded through the Ohio Department of Development's Ohio Energy Office. Waste Alternatives, Inc., of Mount Vernon, OH, services and maintains the listing program while The Internet Professional administers the website.

Tennessee Materials Exchange (TME) http://www.cis.tennessee.edu/environmental/recycle/TME.shtml

The Tennessee Materials Exchange (TME) is a free service, operated by the University of Tennessee Center for Industrial Services (CIS), that helps Tennessee industries and businesses find markets for industrial by-products, surplus materials and wastes. TME listings are updated monthly.

Vermont Business Materials Exchange (VBMX) http://www.vbmex.org

VBMX is a free service whose goal is to minimize waste by fostering the exchange of reusable resources. VBMX keeps a database of available and wanted materials, and publicizes the listings through this web site, the VBMX Listserve, other specialized listserves, the quarterly catalog, and Vermont Business Magazine.

West Virginia Materials Exchange http://www.state.wv.us/swmb/exchange/Index.htm

Created in 1998 by the West Virginia Solid Waste Management Board, the exchange works with business, industry, government agencies and others to facilitate the exchange, reuse and recycling of surplus materials, overstocks, and manufacturing by-products.

Business Material Exchange of Wisconsin (BMEx) http://www.bmex.org/

The BMEx is regional material exchange that has been operating since 1996. The BMEx is open to any resident, business, organization, institution, agricultural operation or other entity located in Wisconsin.

Regional Exchanges

2Good2Toss http://www.2good2toss.com/

2good2toss is Washington's online exchange for reusable building materials and household items. Washington's Department of Ecology funded the start-up costs to get the site off the ground, and each participating municipality paid the web site developer a one-time set-up fee for their exchange on the site and then pays an annual subscription fee to have the site maintained. While anyone can view posted items, users must reside in participating Washington state counties or cities to be eligible to post items. 2good2toss.com is in keeping with Ecology's mission, as set forth in chapter 70.95 RCW, to reduce the volume of solid waste placed in the state's landfills and waste to energy facilities through waste reduction, source separation, recycling, and diversion.

Resource Exchange Network for Eliminating Waste (RENEW) http://www.zerowastenetwork.org/renewdev/

RENEW is a materials exchange network originally established by the Texas Legislature in 1987 to promote the reuse or recycling of industrial wastes. In 2007, the Zero Waste Network expanded RENEW to encompass the Environmental Protection Agency's Region 6. RENEW is a marketing channel for industries, businesses, and governmental units that want to sell surplus materials, by-products, and wastes to users who will reclaim or reuse them.

Southern Waste Information eXchange http://www.wastexchange.org/

The Southern Waste Information Exchange is a free service designed to help businesses, industries and other organizations. Registered users can post both wanted and available listings, similar to a classified ad section. Businesses, industries and other organizations can list their available materials by type, quantity, frequency of availability, geographic location, and date listed. They may also include photos of the materials. Users can post detailed wanted listings, specifying the type(s) of material they need and the frequency. The WasteXchange is funded by the Florida Department of Environmental Protection.

Table 20. Waste/Material Exchanges

Industrial Materials Exchange	http://www.metrokc.gov/hazwaste/imex/
IMEX, the Industrial Materials Exchange, is a free service designed to match businesses that produce wastes, industrial by-products, or surplus materials with businesses that need them. IMEX is a free listing service. Businesses, offices, schools, and individuals "advertise" their surplus/unwanted materials, or materials that they are seeking, by submitting an electronic IMEX listing form. The listings are then posted on the IMEX web site, where they are viewed by interested waste generators and waste recyclers. IMEX will only accept listings from the Pacific Northwest. Specifically, this means that listings will be accepted only from Alaska, Idaho, Oregon, and Washington (EPA Region 10).	
National Waste/Material Exhange	
Freecycle Network	http://faq.freecycle.org/
The Freecycle Network is a private, nonprofit organization incorporated in the State of Arizona. Users join local groups and post items on local Freecycle group sites. Currently, the Freecycle Network is made up of 4,934 groups with 8,338,153 members around the world.	
Locally-Sponsored Waste/Material Exchanges	
The Los Angeles County Materials Exchange Program (LACoMAX)	http://dpw.lacounty.gov/epd/lacomax/
LACoMAX is a free service provided by the County of Los Angeles Department of Public Works, Environmental Programs Division. Users of this on-line materials exchange service can browse or post listings of a wide variety of available and wanted materials. Listings are categorized by 15 material classifications and 6 regions and include common items such as wood pallets, out-of-fashion textiles, and chemicals as well as more uncommon items. All exchanges are coordinated between the two interested parties.	
Marin County (Marin Max)	http://marinmax.org/
MarinMax is designed for use by businesses, non-profits and individuals within Marin County.	
New York City, Department of Sanitation	http://www.wastematch.org/
NYC Wastematch is a free service, created and funded by the NYC Department of Sanitation, which facilitates the exchange of used and surplus goods and equipment from organizations that no longer need them to other entities that do.	
Twin Cities Free Market	http://www.twincitiesfreemarket.org/index.cfm
The Twin Cities Free Market is a reuse program of Eureka Recycling, a nonprofit organization. The Free Market is an interactive, internet-based program that targets residential exchanges. Residents of Carver, Hennepin, Ramsey, and Washington County may use the Free Market. The Free Market is funded in part by the City of Saint Paul, Carver County, Hennepin County, Ramsey County, Washington County, and the State of Minnesota SCORE Fund.	

8.2.2 Recycling and Composting

8.2.2.1 Current Recycling Conditions

As discussed earlier, the cities and counties currently provide curbside collection services or drop-off facilities for collection of recyclables.

8.2.2.2 Recycling Needs

8.2.2.2.1 Business Recycling

There is a continued need to provide information to businesses to encourage recycling as their actions contribute to the overall recycling rate in the region.

- Recruit and provide technical assistance to large businesses in the region to increase recycling. The purpose of providing technical assistance is to set up new recycling programs in larger businesses and work with the haulers or recyclers to efficiently implement these new programs. After a business is recruited, it would receive a waste audit and at least one on-site visit. During the on-site visit, the program staff person would develop waste reduction and recycling recommendations.

- Develop a business recognition program for recycling, composting, and waste reduction for exemplary waste reduction, composting, and recycling activities.

8.2.2.2.2 Evaluation and Monitoring

The cities and counties have taken over from SPSA implementation of curbside and drop-off programs. There needs to be a coordinated effort to evaluate the status of individual recycling programs. The evaluation should address the following:

- Evaluation of what is and isn't marketable and identify opportunities to develop markets for recycled materials.

- Progress toward recycling goals.

- Assessment of public outreach and education programs.

- Assessment of recycling collection and marketing programs.

- Establish an accurate assessment of the region's recycling rate.

- Identify gaps and needs in recycling programs.

8.2.2.2.3 E-Waste

There has been swift growth in the manufacture and sale of consumer electronic products. Advances in technology have led to better, smaller, cheaper products. Industry analysts give every indication that the trend toward rapid introduction of new electronic products will continue.

As the production and use of electronic products continues to grow, the challenge of recovery and disposal is becoming significant. Computer monitors and older TV picture tubes contain an average of four pounds of lead and require special handling at the end of their lives. In addition to lead, electronics can contain chromium, cadmium, mercury, beryllium, nickel, zinc, and brominated flame retardants (USEPA). Another serious concern associated with end-of-life management is the export of electronic scrap to developing countries that may lack adequate worker safety and environmental standards.

While end-of-life electronics (end-of-life electronic products are either obsolete for their intended purpose or no longer useful by the current user and lacks any significant market value as an operational unit. Definition used by the Institute of Scrap Recycling Industries, Inc.) currently comprise only a small amount of the municipal waste stream, that percentage is expected to grow dramatically in the next few years (estimated to be 1.2% of waste generated in 2006 per USEPA, 2006). The average life span of a personal computer is currently about 2-3 years. Electronics that break often are not repaired due to the relatively low price of replacement equipment. When the equipment breaks or becomes obsolete, it is commonly discarded.

SPSA accepts cell phones for recycling through its Household Hazardous Waste Collection facilities. SPSA does not have an established program for the collection and recycling/disposal of computers and other electronics at this time and relies on other programs and vendors to provide this service. Electronics recycling services should be provided to the Region through its solid waste management system.

8.2.2.2.4 Recycling Data Collection

Accurate recycling rate reporting is dependent on the cooperation of recycling entities in the region. In the past, a letter and survey were mailed to a limited number of commercial establishments. The following represent possible improvements to the data collection effort:

- Virginia DEQ also has developed a template for gathering recycling information that HRPDC may find useful.

- HRPDC should create a system that is easy to use for commercial establishments to report recyclables. Montgomery County, Maryland, for example, has a reporting module on their website. This reporting system self-populates their recycling database and makes compilation of the data easier. Businesses can also report recycling quantities through the mail or fax via a form that can be downloaded from their website.

- HRPDC should target businesses that are likely to generate recycling quantities that are NOT collected through a licensed (reporting) waste collector. For example, Montgomery County develops a list of SIC codes to target each year. Each year, a different business sector is targeted to establish contact: -book-stores for book/paper recycling, HVAC contractors for scrap metal, grocery stores for baled cardboard, restaurants for composted food waste, etc. Each year there are several businesses identified that generate significant quantities of recyclables that are not captured through facility or waste collector reporting. Businesses that typically produce large quantities of recyclables include:

  - Landscaping and Tree Service Companies
  - Auto dealerships
  - Large grocery chains (Food Lion, Farm Fresh, Harris Teeter)
  - Property management companies (generally, they establish recycling programs at large office buildings/complexes with multiple tenants)
  - Large retail establishments (Kohls, Wal-Mart, Target). Please note that Virginia DEQ placed recycling information for Walmart on its website.

- HRPDC should maintain enough staff to process submitted recycling information. Montgomery County, Maryland has multiple people on staff that process recycling information submitted by the commercial sector. In addition to verifying their understanding of submitted information, they track the generator of recyclable material, the collector of each recyclable material type, and the ultimate disposal location of the recyclable material. This helps to ensure they do not double count materials.

- Lastly, HRPDC should be prepared to contact non-responsive establishments. As a last resort, most of the municipalities have enacted recycling reporting ordinances that have penalties for non-compliance.

8.2.2.3 Current Composting Conditions

Most of the yard waste in the Region currently is being landfilled, although some communities have at least some portion of the yard waste they collect transported to a composting facility near Waverly, Virginia (McGill Environmental Systems Inc.). Collection systems are in place throughout most of the Region to collect yard waste separately. It can be readily processed and recycled for beneficial use either as compost, wood chips, soil amendment, or other beneficial uses.

8.2.2.4 Composting Needs

The Region has had difficulty with its yard waste management program. A comprehensive regional processing facility was constructed by SPSA in 2005 at Virginia Beach's Landfill No. 2, but was closed in 2007 following opposition from surrounding residents and the City of Virginia

Beach after persistent nuisance complaints and public health concerns. A regional facility may be appropriate for the urban areas within the Region (Chesapeake, Norfolk, Suffolk, Portsmouth, and Virginia Beach), but an alternative approach may be appropriate for the more rural areas (City of Franklin and Isle of Wight and Southampton Counties).

8.2.3 Resource Recovery (Waste-to-Energy)

8.2.3.1 Current Conditions

In late 2007, SPSA advertised that it would entertain proposals from qualified interested parties for the sale of the RDF WTE Facility. In 2010, SPSA sold the facility to ~~Wheelabrator~~WIN Waste Technologies. Under the terms of the sale and subsequent agreements, ~~Wheelabrator~~WIN Waste was contracted to ~~ill~~ accept and processes SPSA member community solid waste at the RDF WTE Facility through June 2027~~7~~. Based on the circumstances with WIN Waste's contract with the US Navy for purchase of steam terminating at the end of June 2024, the WIN Waste facility will not be able to satisfy its contractual obligations to accept SPSA waste at the current disposal costs beginning on July 1, 2024. WIN Waste has indicated that it intends to close the facilities and commence with decommissioning and demolition of the power generating and RDF facility after closure.

8.2.3.2 Needs

The RDF WTE Facility was~~is~~ a key component of the Region's waste management infrastructure. ~~It is anticipated that Wheelabrator will operate its RDF WTE Facility into the foreseeable future.~~ The facility had~~s~~ the capacity to process~~dispose~~ of a significant portion of the Region's municipal, commercial, and industrial solid waste. SPSA has indicated that it intends to dispose of the residential solid waste from its member communities at the Regional Landfill or transfer to other locations that is in its best interest. It is uncertain at this time where the private haulers that are contracted to collect the commercial and industrial waste generated in the region will dispose of their solid waste, but likely will rely on private landfill facilities in proximity to the region.~~at the intentions of the~~

Under the current market conditions, it is very unlikely that another waste to energy facility would be sited and constructed in the region in the near future. In accordance with SPSA's Strategic Operating Plan, the SPSA Board of Directors and Executive Staff from time to time, as and when appropriate under the circumstances, and no less often then every seven (7) years, undertake a comprehensive review of the disposal methods being utilized and assess its viability for future periods of time. This assessment may include exploration and requests for proposals from developers of alternative waste disposal options including resource recovery facilities that are higher on the waste management hierarchy than landfilling.

~~Region's member communities are with respect to utilization of the Wheelabrator RDF WTE Facility beyond the current contract term agreed to by SPSA. If the contract with SPSA is not renewed pursuant to the service agreement SPSA currently has with Wheelabrator, the individual municipalities may negotiate their own contracts with Wheelabrator or seek other disposal methods.~~

8.2.4 Landfilling

8.2.4.1 Current Conditions

Currently permitted and constructed landfill area are Cells I through VI. Cell VII was permitted in 2011. On an annual basis the Authority measures the volume of material already placed in the Regional Landfill by a topographic survey. HDR Engineering was hired by SPSA to perform the airspace calculations utilizing information from the topographic survey. In the January 2022 Airspace Management Report, HDR Engineers, presented information concerning when the currently constructed landfill cells could possibly reach capacity depending on the quantity of waste disposed annually and the density achieved in waste being placed for disposal. In the report, assuming current conditions continue, HDR Engineers estimated that as of December of 2021 the Regional Landfill had less than 3.2 million cubic yards of permitted airspace available in Cells V and VI, of which just 2.6 million cubic yards of disposal airspace was readily recoverable. The recoverable airspace include filling in areas within existing operating area and not recovering airspace available on lower slopes due to settlement of waste. The 2022 report assessed the impacts associated with the shift in waste disposal away from WIN Waste in July 2024 and estimated that Cells V and VI would reach capacity as early as **January 2027**, if the waste placement approached 1,400 lb/CY.

The capacity of the permitted but not yet constructed Cell VII is estimated to be 10,800,000 cubic yards. The construction of Cell VII is anticipated to commence in 2024 and be ready for receipt of waste by April 2026, according to SPSA. At a density of 1,400 lb/CY and a waste acceptance rate of approximately 500,000 tons per year, Cell VII would provide approximately 15 years of additional life or through 2042. However, the Cell VII capacity relies on overlap onto existing Cell V filled areas and the abandonment of the main landfill access road and relocation of critical infrastructure in that corridor including leachate forcemain, underground electric, fiber optic SCADA communication lines and drain lines. SPSA has stated that it intends to modify the Cell VII permit to include a separate phase of construction to delay the connection of Cell VII to Cell V and the relocation of this infrastructure. This adjustment to the phasing would reportedly truncate the effective capacity to between 8.60 million and 9.28 million cubic yards and reduce the life of Cell VII to 12 to 13 years.

~~In the February 2018 Airspace Management Report, HDR Engineers, presented information concerning when the currently constructed landfill cells could possibly reach capacity depending on the quantity of waste disposed annually and the density achieved in waste being placed for disposal. In the 2018 report, assuming current conditions continue, HDR Engineers estimated that in January of 2018 the Regional Landfill had more than four million cubic yards of permitted airspace available for future waste disposal in Cells V and VI. Assuming waste can be placed at a density of 1,400 to 1,600 lbs/CY and all permitted airspace can be captured, Cells V and VI will not reach capacity in its current configuration until 2027 or 2028, respectively. The actual rate of landfill airspace consumption will depend on the rate of waste intake over time and the ability of the landfill operators to maintain the outside side slopes at the design elevations as the landfill settles. The 2018 report has analyzed potential disposal capacity for Cell VII to be reached in 2041 at 1,280 lbs/CY density and 2048 at 1,670 lbs/CY density with incoming waste being 400,000 tons annually.~~

8.2.4.2 Needs

Landfills will be needed to provide for the disposal of MSW, CDD, industrial waste, sludges, and ash residue generated in the Region. The quantities of these waste streams that will require landfilling will depend on how much waste is recycled, incinerated, or otherwise processed. With the anticipated closure of the WIN Waste waste to energy facility, and having no viable alternative processing facility in the Region to reduce waste disposal quantities, providing ~~Given current technology, landfills will remain a necessary and important component of waste management for disposal of non-processible waste and ash. Therefore, the Region may be re~~adequate ~~quired to maintain~~ landfill disposal capacity within the Region or secure disposal capacity elsewhere is a priority.

The disposal capacity of the SPSA Regional Landfill, with the closure of the WIN Waste facility is only projected to provide disposal capacity through 2038. SPSA is required under the Use and Support Agreements with the Member Localities, to satisfy the waste disposal needs for at least the next 20 years. The proposed expansion of the Regional Landfill to add 129 acres to the solid waste boundary and addition of Cells VIII and IX to provide 16 million cubic yards of disposal capacity is needed in order for SPSA to meet this obligation and to continue to maintain and manage a safe, cost efficient, sanitary and environmentally sound solid waste disposal system for the receipt of the Member Localities solid waste.

8.3 OTHER WASTE MANAGEMENT NEEDS

8.3.1 Transfer of Solid Waste

SPSA indicates that all eight of the transfer stations are in operation and are generally operating within their design capacities.

8.3.1.1 Needs

As the region continues to grow, improvements and upgrades will be required at the transfer stations to continue to meet the needs of the region in the most cost-effective manner. With the pending closure of the WIN Waste facility, a transfer operation for the City of Portsmouth will need to be developed. Potential use of the WIN Waste RDF facility is an option that may be considered in addition to construction of a new transfer station.

8.3.1.1.1 Criteria for Transfer Station Improvements

The transfer stations are aging; however, the service levels must be maintained or improved as the population grows and the facilities reach their physical and functional limits. The following can be indicators that a transfer station is in need of upgrading:

- Time spent by customers on site becomes excessive.
- Facility hours are no longer meeting customer needs.

- The transfer station is experiencing difficulty in accommodating all vehicle and tonnage throughput during peak hours.
- The transfer station is experiencing damage due to changes in collection vehicle design.
- Traffic impacts on local streets are increasing.
- Environmental standards are not being met.

As the facilities age and the needs for solid waste services change, the transfer system may require upgrades to maintain operational efficiency. The 2017 SPSA Annual Survey Report prepared by CH2M describes the current condition of the SPSA transfer stations as well as recommended maintenance activities. SPSA indicates that all nine of the transfer stations are generally operating within their design capacities. The design capacity of each station and most recent annual waste quantities reported are provided in the table below.

Table 21. SPSA Transfer Stations Design Capacity and Waste Quantities, FY 2016~~5~~ - 2021~~17~~

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Transfer Station	Design Capcity (Tons/Day)	Tons Received						
		FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
Boykins[1]	50	650	650	650	650	650	650	650
Chesapeake	500	141,030	135,637	137,053	122,729	130,282	124,492	131,243
Franklin	150	22,674	21,760	21,817	20,966	22,162	21,755	21,839
Isle of Wight	150	22,230	23,930	20,247	20,326	19,056	18,703	19,452
Ivor[1]	50	650	650	650	650	650	650	650
Landstown	1,300	169,468	176,966	163,360	147,696	142,522	147,816	166,798
Norfolk	1,300	218,208	195,975	196,339	162,697	155,733	155,473	150,971
Oceana	500	83,961	74,736	76,298	70,037	73,650	72,280	81,533
Suffolk	500	65,075	65,101	70,607	66,767	64,084	68,542	73,772
RDF Facility[2]	N/A	151,300	142,343	141,794	93,326	49,135	57,454	58,655
Total	5,500	875,246	837,748	828,815	705,844	657,924	667,815	705,563

Source: SPSA FY2023~~1~~ Operating and Capital Budgets 1) Boykins and Ivor facilities average 650 tons/year. 2) The RDF facility is not a SPSA transfer station, but waste from Portsmouth and some waste from Chesapeake are delivered directly to the RDF facility.

8.3.1.1.2 Expanded Transfer Station Capacity

A general rule for evaluating the need for collection vehicle transfer is based on hauling distance. Although cost-effectiveness will vary, transfer stations generally become economically viable when the one-way hauling distance to the disposal facility is greater than 15 to 20 miles. However, it should be noted that transportation conditions (i.e., traffic, road quality, size of vehicles used and collection routing) will impact the benefit of direct-haul versus consolidating refuse at a transfer station.

In rural areas, transfer stations also provide increased convenience for residential and non-residential self-haulers, who might otherwise have to travel long distances to reach a disposal site. Increased convenience helps reduce the amount of illegal dumping, illegal burning, and other inappropriate forms of disposal.

SPSA currently operates a transfer station network. Two possible reasons for adding an additional transfer station include:

- Economic growth in outlying areas of the region, particularly western Chesapeake, western Portsmouth and northern Suffolk and the southern sections of Chesapeake and Virginia Beach, may cause the waste stream to grow to a point where another transfer station may become feasible or desirable. Drive times would be significantly reduced and convenience for residents would be greatly improved.

- There also may be a need to build an additional transfer station in urban areas particularly if existing stations are being over utilized and any upgrades are not feasible.

- Relocation of an existing transfer station to better conform to existing or planned land uses within a jurisdiction. For example, the City of Virginia Beach is considering options for replacement of the Landstown Transfer Station because its current location is in an area that has an expanding educational land use, and the City would like the existing Landstown transfer station property to be used for different purposes.

The benefits of building a new transfer station must be weighed against the costs of adding new facilities. SPSA maintains the existing transfer stations which may require periodic upgrades.

SPSA could evaluate the long-term need for additional transfer stations based on the following:

- Projected population growth and growth patterns.
- Availability of suitable sites.
- Remaining capacity of existing transfer stations.
- Customer usage of existing transfer stations.
- Convenience and accessibility for the region's residents.
- Effect on transfer system costs.
- Land uses.

Sufficient time should be allowed for construction of new transfer stations as warranted.

9.0 IMPLEMENTATION PLAN

Previous versions of the SWMP provided a timeline for the development of several new facilities for the solid waste system. The following provides an overview of the alternatives that were considered and an update on the Region's progress in implementing these alternatives as well as new initiatives being considered. In addition, the HRPDC sponsored a study in 2008 which evaluated institutional, organizational, technology, and disposal options for managing waste in the region after 2018, when the use and support agreements between the SPSA Region members was set to expire.[4] The use and support agreements were extended with an initial term through June 30, 2027 prior to expiration in 2018. The use and support agreements shall automatically renew for successive additional 10-year terms, unless a Member Locality opts to not renew.

9.1 WASTE MANAGEMENT HIERARCHY

In accordance with the Virginia Solid Waste Management Regulations, the region's solid waste management plan must consider and address all components of the solid waste hierarchy. The solid waste hierarchy ranks methods of managing solid waste from most preferred to least preferred:

The Virginia Department of Environmental Quality has adopted a hierarchical approach to the management of solid waste. The hierarchy establishes the framework for solid waste management and includes the following components:

- Source Reduction
- Reuse
- Recycling
- Resource Recovery (Waste-to-Energy)
- Incineration
- Landfilling

SPSA and its member localities, as well as the HRPDC, continue to examine various alternatives for the management of solid waste in Southeastern Virginia. Historically SPSA has focused its efforts on disposal of the Region's solid waste and on alternative approaches to increasing participation in the disposal programs offered to the region. The eight member local governments continue to focus on improvements to the local solid waste collection and recycling systems as well. This section of the RSWMP summarizes the hierarchical approach to Integrated Waste Management envisioned by state and federal agencies and outlines the alternatives being considered.

[4] SCS Engineers, Final Interim Report, Solid Waste Management for Southside Hampton Roads, Planning Horizon 2018-2047, Prepare for the Hampton Roads Planning District Commission, Revised January 5, 2009.

9.1.1.1 Source Reduction and Reuse

9.1.1.1.1 Source Reduction

The Virginia Solid Waste Planning and Recycling Regulations define source reduction as "any action that reduces or eliminates the generation of waste at the source, usually within a process. Source reduction measures include process modifications, feedstock substitutions, improvements in feedstock purity, improvements in housekeeping and management practices, increases in the efficiency of machinery and recycling within a process."

Source reduction, as an approach to solid waste management, has been applied primarily to industrial and hazardous wastes. It reduces the amount of waste requiring disposal, thus prolonging the life of existing waste disposal alternatives. However, it does not eliminate the need for other disposal options.

The primary responsibility of local and regional agencies in source reduction must be in the area of public education and creation of a spirit of stewardship on the part of the citizens, both individual and corporate, due to the fact that packaging of items is out of the control of SPSA and local retailers. Each governmental entity in the region can practice source reduction, to some degree, through its buying practices. Source reduction is directly under the control of private individuals and businesses.

9.1.1.1.2 Reuse

Reuse generally assumes the reuse of a material in a manner identical to its original use and is not significantly different from recycling or source reduction. Therefore, it is considered in this Plan as synonymous with source reduction. Refilling of returnable drink containers is an example of reuse. As with source reduction, the primary responsibility of local and regional agencies is in the area of public education.

9.1.1.2 Actions

- **Continue Household Hazardous Waste (HHW) collection program:** SPSA continues to operate a regional HHW collection program through five collection facilities. One facility (at the Regional Landfill) is open on a full-time basis; the remaining four are open based on a monthly recurring schedule. The City of Virginia Beach has recently opened its own HHW drop-off facility at its Landfill No. 2, and the City of Norfolk also plans to begin operation of HHW facilities to serve their residents. These programs support other environmental programs such as the Hampton Roads Regional Stormwater Management Program which is built on a series of cooperative initiatives such as illicit discharge detection and elimination.

- **Consider Implementation of a Regional Waste/Material Exchange:** As discussed earlier, one company's disposal problem may be another's valuable resources.

HRPDC can assess options for implementing a regional waste/material exchange for use by businesses and/or residents.

9.1.2 Recycling and Composting

Recycling is the third highest priority in strategies to manage materials in the waste stream. Recycling is defined by the Virginia regulations as "the process of separating a given waste material from the waste stream and processing it so that it may be used again as raw material for a product which may or may not be similar to the original product." Processing old newspapers to produce "new" paper and composting or mulching of yard wastes are examples of recycling.

Recycling reduces the amount of solid waste that requires disposal. It also reduces reliance on the use of virgin materials in manufacturing. Concurrently, recycling can further enhance the increased public awareness of solid waste management issues by involving the public directly in waste management.

9.1.2.1 Actions

- **Evaluate Materials Recovery Facility:** Currently there is only one significant Materials Recovery Facility (MRF) in the Region that is capable of processing materials collected from various recycling programs. At the time the 2005 SWMP was written, SPSA was the primary provider of recycling collection services in the Region, with the exception of Virginia Beach. As an alternative, SPSA considered the construction and operation of a competing MRF. However, SPSA has discontinued recycling services and the member communities have taken over the responsibility for collection of recyclables. A SPSA-operated MRF is no longer a consideration for the Region and processing of recyclables will continue to remain a private sector function.

- **Yard waste facility:** SPSA has operated facilities where yard waste collected by member communities was handled, mulched and composed. Yard waste was transported by SPSA from member collection points to the yard waste management facility at the Virginia Beach Landfill No. 2. However, this facility was closed in 2007 to address neighbor complaints of excess odors from the facility. The Region does not currently have a facility dedicated to the handling and processing yard waste. Although the SPSA's regional yard waste management facility located at Virginia Beach's Landfill No. 2 was abandoned after it encountered operational challenges with odors, the development of a regional facility should be considered in the future if the SPSA member communities decide to cooperate in whole or in part their after use and support agreement with SPSA expire in 2027. However, in the interim, the member jurisdictions continue to evaluate options for utilization of their yard waste for beneficial purposes rather than disposing in a landfill.

- **The HRPDC has implemented a Web-Based Recycling Reporting System:** This system has facilitated easier, more accurate reporting of collected quantities.

9.1.3 Resource Recovery (Waste-to-Energy)

According to Virginia's Solid Waste Planning Regulations, resource recovery entails a comprehensive "solid waste management system which provides for collection, separation, recycling and recovery of energy or solid wastes, including disposal of non-recoverable waste residues." Combustible items are burned as a fuel to produce steam and/or electricity. Noncombustible items, including the ash from the combustibles, must be disposed of in some other fashion, such as landfill or Alternative Daily Cover (ADC). Recyclable materials, typically glass, ferrous metals and aluminum, are recycled following separation. Recycling and source reduction programs may enhance the effectiveness of the combustion alternatives.

9.1.3.1 Actions

- **Operation of RDF WTE Facility:** As mentioned earlier, the sale of the RDF WTE Facility and subsequent transfer of non-processible waste to a private landfill located outside of the SPSA Region ~~has~~ will be the primary disposal method in the Region through June 30, 2024. ~~at least throu~~The RDF WTE Facility is anticipated to cease operations on July 1, 2024. ~~gh 2027. Long-term planning for future disposal will still be pursued by the Region members, either cooperatively or independently after 2027. Use of the RDF WTE Facility could still be an available option after 2027.~~ Development of a new WTE Facility in the region by a developer is very unlikely with the current market conditions for waste disposal, energy generation revenue streams and community acceptance.

- **New Resource Recovery Facility:** SPSA will continue to monitor solid waste resource recovery technologies as they are developed and demonstrated both domestically and internationally. Assessment of the viability of these technologies will be reviewed periodically in accordance with the SPSA Strategic Operating Plan, if it is in the best interest of SPSA and the Member Localities, SPSA would issue Requests for Proposals for alternative technologies for disposal of all or portions of the systems solid waste.

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9.1.4 Landfilling

Landfill disposal of solid waste is the most prevalent option in the United States. The Virginia Regulations define a landfill to include "a sanitary landfill, an industrial waste landfill, or a construction/demolition/debris (CDD) landfill." Landfills for municipal solid waste presently are operated as sanitary landfills, involving daily cover of the waste, required use of liners, and leachate collection systems. Landfilling is required for management of solid wastes that do not lend themselves to any of the other management options. Of the Southeastern Virginia landfills currently permitted and in operation, three are publicly owned while the others are private CDD landfills.

9.1.4.1 Actions

- **New transfer stations**: In addition to the waste transfer facilities in the existing SPSA network, a new facility for the City of Portsmouth is anticipated to be required

following the closure of the WIN Waste facility~~two additional facilities are proposed as a condition of the Special Use Permit (from the city of Suffolk) associated with the permitting of the proposed expansion of the Regional Landfill (Cell VII). It is understood that the status of these facilities is uncertain pending further evaluation by SPSA and discussions with the City.~~.

- **Regional Landfill**: Continue using Cells V and VI until capacity is consumed. Plan for the construction and operation of Cell VII. Plan and commence permitting of Cells VIII and IX to increase the disposal capacity of the Regional Landfill to provide at least 20 years of disposal capacity for the regional MSW. ~~. Continue planning for the active use of Cell VII to provide future disposal capacity for the region.~~

- **Evaluate options for managing CDD waste:** The region has the total capacity to manage CDD waste over the planning period, however, CDD disposal capacity is limited. The region will need to explore options for managing CDD waste such as increased recycling, accommodating more CDD waste at the SPSA Regional Landfill, expanding the catchment area of the Portsmouth CDD landfill, or adding private CDD landfill capacity at existing or new landfills.

- **Continue operation of the Virginia Beach Landfill No. 2:** This landfill is owned by the City of Virginia Beach and continues to remain in operation. The landfill has ceased accepting ash from the RDF WTE Facility. The City is considering long term options for the facility.

9.2 IMPLEMENTATION OF ACTIONS

The timeline for implementation of most actions stated in the previous section is a subject of a strategic planning study authorized by the HRPDC in 2008 and updated in 2010. In addition, based on the study results and other considerations, the SPSA M~~m~~ember Localities~~communities~~ determined that SPSA will continue to be the designated regional solid waste management agency. As long as SPSA is the regional solid waste management agency, it will be involved in the development of the regional solid waste management plan. In March 2010, the communities designated the HRPDC as the regional solid waste planning agency and the agency responsible for tracking and reporting on recycling activates in the Region. Key milestones are summarized below:

- Complete update to the 2018 and Beyond Study: The report finalized in October 2011.

- ~~Make decision regarding the~~ Termination of the ~~extension of the Wheelabrator~~WIN Waste service agreement, as WIN Waste is planning to close after June 30, 2024. ~~. The current contract between SPSA and Wheelabrator Technologies runs through June 2027.~~ The regions MSW currently being delivered to the WIN Waste facility

will be transferred to the Regional Landfill or other out of service area disposal locations beginning July 1, 2024.

- Make decisions regarding the location of transfer station for the City of Portsmouth MSW, permit and construct as required to support operations following cessation of the WIN Waste facility.

- ~~Post 2027, the SPSA member communities will evaluate the method of disposal.~~

- ~~Fate of the~~ Regional Landfill Capacity: The Regional Landfill will continue to be used by SPSA member localities at least through 2027, under the terms of the Use and Support Agreements. The Member Localities will review from time to time the Designated Disposal Mechanism for the disposal of the regional MSW.

- SPSA has proceeded to begin permitting for the Cells VIII and IX expansions to meet its obligation to provide twenty plus years of disposal capacity.~~.~~

- Plan for commencing construction of Cell VII in 2024 so that is ready for operations in 2026.

- Complete permitting, design and construction of alternative entrance flyover to the Regional Landfill as required by Conditional Use Permit with the City of Suffolk for Cell VII operations.

- ~~—~~

- ~~Expiration of the ash disposal agreement with the City of Virginia Beach (December 31, 2015). The City of Virginia Beach is required to pay the same tip fee as the other SPSA members and is no longer obligated to accept ash residue from the RDF WTE Facility.~~

The implementation of many actions stated in Section 9.1 is ongoing. The HRPDC will continue to evaluate appropriate implementation actions based on assessments of regional needs.

9.3 FUNDING/FINANCING OF PROGRAMS AND FACILITIES

The following section provides an overview of the funding mechanisms established by the local governments of Southeastern Virginia to pay for management of solid waste.

- **SPSA**: Tipping fees are SPSA's primary source of revenue. A tipping fee is generally a fee levied to dispose of waste directly at a landfill or waste to energy facility. SPSA's tipping fee reflects the aggregate cost to maintain and operate nine transfer stations, a transportation network, a landfill, fleet maintenance, administration, and waste disposal at the ~~Wheelabrator~~WIN Waste WTE facility. Tipping fees are

collected for disposal of municipal waste, waste from the Navy, CDD waste, and various other types of waste.

- **City of Chesapeake:** The Waste Management Division of the Public Works Department provides refuse collection services for single family and townhouse residences in the City. It allocates monies from the General Fund to cover the costs of this service.
- **City of Franklin:** The City uses General Fund revenues to pay for the costs of solid waste collection and disposal. Solid waste fees are paid by homeowners and businesses on their monthly utility bill.
- **City of Norfolk:** The City's Department of Public Works Waste Management Division collects approximately 83,000 tons of refuse annually from 64,500 residences and businesses. Since FY 2014-2015, Norfolk has utilized a Special Revenue Fund derived from charges to homeowners and businesses to pay for services.
- **City of Portsmouth:** Portsmouth charges a residential refuse collection fee on its public utilities bill. The City also charges a monthly rate for regularly scheduled service in the downtown commercial district. The City has established a separate Waste Management Fund as a revenue stream to pay for costs of service.
- **City of Suffolk:** The City's collection, disposal, and recycling services are funded through an Enterprise Fund. Residents who receive curbside service are assessed a monthly fee.
- **Virginia Beach:** The City's operations are funded through an Enterprise Fund. Residents are assessed a monthly fee for curbside services.
- **Isle of Wight County:** The County uses its General Fund to pay for refuse collection and disposal services. Within the County, the Towns of Smithfield and Windsor have their own arrangements for residential refuse collection, disposal and recycling services.
- **Southampton County:** The County uses the General Fund to cover costs for refuse collection and disposal services.

9.4 PUBLIC EDUCATION

Educational programs are ongoing throughout the region, and both SPSA and the localities continue to educate the public on the need for proper waste management and disposal practices. This is done through a variety of means, including a detailed SPSA website, classroom presentations, SPSA facility tours and print pieces such as brochures and informative booklets, and media spots. SPSA and the individual localities provide and participate in a variety of educational programs throughout the member localities and the Hampton Roads region. Programs include the following:

- **SPSA Programs:** SPSA continues to offer limited educational materials on its website.

- **Local Programs:** Most localities in Southeastern Virginia have Clean Community offices that provide educational information to the public about their specific locality, as well as an array of volunteer opportunities. Some of these opportunities include Clean the Bay Day, Adopt-a-Spot, Keep America Beautiful projects, and many more. Most Clean Community offices have program information and contact lists available through the host locality's website.

  Since the municipalities have taken the responsibility for collection of recyclables, information on recycling is available on city/county websites.

- **Regional Programs:** HR CLEAN, the recycling and litter prevention education program of the HRPDC, is a regional coalition of local and regional Clean Community, recycling, and environmental education coordinators who promote litter prevention, recycling, community beautification, and general environmental awareness through educational projects designed to reach all sectors of our communities.

9.5 PUBLIC/PRIVATE PARTNERSHIPS

A broad range of issues will influence the configuration of the regional solid waste system in the future. The economic dynamics of solid waste management are difficult to predict. Public/private partnerships may offer cost effective and efficient solutions to specific solid waste management problems in the future. SPSA continues to develop and explore opportunities and ideas for joint ventures. An example~~s~~ is the ~~previously discussed~~ Landfill Gas-to-Energy Plant at the SPSA Regional Landfill and the methane recovery plant at Virginia Beach Landfill No. 2. The City of Virginia Beach has partnered with Ingenco in its efforts in this arena.

Through its relationship with Suffolk Energy Partners, SPSA was~~is~~ able to process landfill gas for use by either Dominion Virginia Power or BASF. Under the terms of amended and restated landfill gas rights, easement, and lease agreement between SPSA and Suffolk Energy Partners, now MAS Suffolk RNG, LLC, ~~. The City of Virginia Beach has partnered with Ingenco in its efforts in this arena.~~

a landfill gas to renewable natural gas (RNG) facility is being constructed and the landfill gas to energy facility decommissioned and demolished. The agreement was executed in December 2021 and the RNG facility is planned to be operational in 2023.

Contracts between the localities and SPSA, as well as between ~~Wheelabrator~~WIN Waste, ~~and~~ private waste haulers, and other vendors are and will continue to be important to the waste management programs offered throughout the region. The current agreements between SPSA and its eight member localities will expire on June 20, 2027~~in the year 2028~~. Efforts are already underway to promote continued and strengthened commitment of area local governments to SPSA, and to ensure the future viability of the authority~~gency~~.

9.5.1 Existing Role of the Private Sector

The private sector currently plays a significant role in handling and disposing solid waste generated within the SPSA localities. The existing role of both the public and private sector is explained in Section 2.0. The continued mix of public sector and private sector involvement will be needed to ei~~-~~nsure that the waste management needs of South Hampton Roads are met in an efficient manner. For the several components of the solid waste stream the division of responsibility between SPSA, the localities, and the private sector is as follows:

- **Municipal Waste**

  - **Recyclable Materials:** Tidewater Fibre collects residential recyclables under contract to most member jurisdictions including Virginia Beach, ~~Chesapeake,~~ Norfolk, and Suffolk. Portsmouth collects the recyclables and delivers the collected materials to RDS.

  - **Municipal Solid Waste:** Municipal solid waste currently is collected by the localities and delivered to SPSA. This waste stream is segregated into processible or non-processible waste. Processible waste is transferred by SPSA to the RDF WTE Facility. Non-Processible waste is transported by ~~Wheelabrator~~WIN Waste to other disposal facilities. This arrangement is governed by the service agreement between ~~Wheelabrator~~WIN Waste and SPSA~~,~~ and was anticipated to be ~~is~~ effective through January 2027. In the event the RDF WTE Facility is not operational, waste is either diverted to the Regional Landfill or to other disposal facilities pursuant to the agreement between SPSA and ~~Wheelabrator~~WIN Waste. Both the operation of the RDF WTE Facility and final disposal of non-processible waste is managed by a private firm. ~~After 2018, new contractual and operational arrangements will be in place governing the management of municipal solid waste, and may include maintaining the existing disposal arrangements, or developing new ones.~~ The anticipated closure of the WIN Waste facility in July 2024 will be a major disruption to the private collection and disposal market in the region that also relied heavily on the processing capacity of the waste to energy facility. There will no longer be separate transfer and disposal of non-processible waste from the SPSA transfer stations. Private waste haulers collecting solid waste from commercial, industrial and multi-family generators in the region will need to secure disposal agreements with other private facilities outside the region. Limited quantities of commercial waste may be accepted by SPSA.

  - **Other Recyclable Materials:** Other recyclable materials such as yard waste, white goods, and metals from ash residue generated from the RDF WTE Facility are handled, in part, by private firms.

- **Other Wastes**

- **Construction and Demolition Debris**: The bulk of CDD handled and disposed of within the SPSA localities is processed by the private sector.

- **Household Hazardous waste** is collected by SPSA. Disposal is handled by a private contractor.

- **Special Wastes:** Several types of special wastes, including motor vehicle tires, waste oil and batteries are collected and processed by SPSA. These materials are also collected and processed by the private sector. Other types of special wastes, including stumps and land clearing debris, are for the most part processed as part of the CDD waste stream by the private sector. Septage and sludge are handled by a combination of SPSA, Hampton Roads Sanitation District, and a wide range of private companies.

- **Petroleum-Contaminated Materials:** Opened in 1999, Soilex specializes in the treatment and recycling of petroleum-contaminated materials and receives the majority of the region's waste materials that come from oil spills and other emergency response actions. This facility will allow SPSA to receive larger volumes of materials that, once treated, may be used in other beneficial ways at the landfill. What the partnership means to SPSA is additional material to cover landfilled waste that SPSA does not need to pay for and avoided fuel and transportation costs.

- **Methane Gas:** In November 2010, an agreement between SPSA and Suffolk Energy Partners, LLC (SEP) was made that conveyed exclusive rights for all the landfill gas (LFG) at the Regional Landfill to SEP for capture and beneficial reuse. SEP had held the rights to the LFG under a previous agreement and owns and operates the LFG recovery system that consists of recovery wells and flare. In addition, SEP owns and operates an electrical power plant at the Landfill that generated~~s~~ electrical power for sale to Dominion Virginia Power. Gas was~~is also~~ delivered to a BASF Plant on Wilroy Road in Suffolk, approximately 2.3 miles from the Landfill via an existing pipeline constructed in 2001. In December 2021, SPSA executed an amended and restated landfill gas rights, easement and lease agreement with MAS Suffolk RNG, LLC (f/k/a Suffolk Energy Partners, LLC) for the finance, permit, construct, operate, and maintenance of a new landfill gas to renewable natural gas facility. The renewable natural gas will be transmitted to the Columbia Natural Gas transmission line that bisects the Regional Landfill site and MAS Suffolk RNG and LLC will share in the royalties generated from the work. Through the terms of the agreement, MAS Suffolk RNG will remain responsible for the capital and operation and maintenance costs for the landfill gas collection system and the processing facility.

9.5.2 Potential Future Role of the Private Sector: Municipal Solid Waste

The nature of the future role of the private sector in handling and processing municipal solid waste generated within the SPSA localities has changed over the past several years and will be determined by a combination of economic factors and political decisions made at the local and regional level. Under the existing contractual structure between the localities and SPSA, the division of responsibility between SPSA and the localities will remain relatively static until 2027. The existing contracts between the localities and SPSA will expire in 2027. The ~~, as will the~~ contract between SPSA and ~~Wheelabrator~~WIN Waste was also set to expire in 2027, but all indications are that the agreement will be terminated at the end of June 2024. If the agreements are not automatically renewed ~~contracts are not renegotiated~~ by the Member Localities in 2027~~etween SPSA and the localities~~, disposal of solid waste could become a function of the private sector.

9.6 SOLID WASTE MANAGEMENT PLAN IMPLEMENTATION

Various entities, both public and private, are responsible for implementing the SWMP. Public entities include, SPSA, HRPDC, and SPSA member localities. Private entities include waste haulers and processors, landfill operators, and numerous business that participate in the recycling system. Resident also play an important role in the recycling system by separating materials before the enter the commercial processing stream.

10.0 PUBLIC PARTICIPATION

10.1 CURRENT & FUTURE PROGRAMMING

SPSA offers an outlet for the public, both citizens and businesses, to give suggestions, make requests and comments on its website, www.spsa.com. In addition, SPSA offers the public an opportunity to speak to the Board of Directors at the monthly Board meetings held in the Regional Board Room at 723 Woodlake Drive, Chesapeake, VA 23320. These meetings, which are normally held on the fourth Wednesday of every month, are open to the public. The public may also participate in programs such as HRCLEAN which is sponsored by the HRPDC. The HRPDC also offers the public opportunities to speak at their Quarterly Commission meetings.

10.2 SOLID WASTE MANAGEMENT PLAN PUBLIC NOTICE AND HEARING

SPSA provided for public participation during the development of the original RSWMP. Public participation procedures include publication of a public notice announcing the availability of the revised RSWMP and commencement of a 30-day comment period and the person to be contacted with comments.

11.0 REGIONAL SOLID WASTE MANAGEMENT PLAN AMENDMENT PROCEDURES

HRPDC adopted the following procedures for interested parties to request an amendment to the approved RSWMP, and for HRPDC staff to review and process such requests. To initiate an amendment to the RSWMP, a completed application form which can be obtained from the HRPDC) with supporting documentation, must be submitted. The application will be reviewed for completeness and evaluated based on the justification of need for the proposed amendment. The HRPDC must approve all major and most minor amendments to the RSWMP prior to its submittal to the VDEQ. (Minor amendments described in Section 11.1.B.1 and 2 below require such approval.)

11.1 TYPES OF AMENDMENTS TO THE RSWMP

Virginia's Solid Waste Planning Regulations allow for two types of amendments to approved solid waste management plans. They are classified as major or minor amendments.

A. Section 9 VAC 20-130-175.A.1 of defines major amendments as:

1. Any addition, deletion, or cessation of operation of any solid waste disposal facility;
2. Any increase in landfill capacity;
3. Any change that moves toward implementation of a waste management strategy that is lower in the waste management hierarchy;
4. Action plan(s), including an action plan to address a planning unit's recycling rate that has fallen below the statutory minimum;
5. And any change to membership in the approved area.

B. Section 9 VAC 20-130-175.A.2 defines minor amendments as:

1. Any addition, deletion, or cessation or operation of any facility that is not a solid waste disposal facility;
2. Any change that moves toward implementation of a waste management strategy that is higher in the waste management hierarchy or;
3. Any non-substantive administrative change, such as a change in name.

11.2 RSWMP AMENDMENT PROCEDURES

A. To request an amendment to the RSWMP, an applicant shall:

1. Submit a completed application and supporting documentation to the HRPDC for the desired amendment and

2. Pay out of pocket expenses associated with its application such as advertisement of public notice.

3. The application and all supporting documents shall be submitted to the HRPDC.

B. HRPDC response to an application to amend the RSWMP shall include:

1. Within fifteen (15) days of receipt, HRPDC will acknowledge receipt of the application to amend the RSWMP.

2. Within thirty (30) days of receipt, HRPDC will evaluate the application for completeness. A letter acknowledging a complete application will be sent to the applicant.

3. If needed, a request for additional information will be sent to the applicant, who will have thirty (30) days to submit the additional information, or the request to amend the RSWMP will be denied.

4. Within ninety (90) days of receipt of a complete application, HRPDC staff will review and evaluate the justification of need for the proposed facility. This review may include discussions with the applicant, local government officials, members of SPSA staff and permitting staff at VDEQ.

5. The approved RSWMP will be the primary instrument used to evaluate the need for the requested amendment.

6. If the conclusion of the evaluation is that the requested amendment is consistent with the intent of the RSWMP and in the best interest of the planning region, HRPDC staff will amend the text of the approved RSWMP to accommodate the amendment request.

C. Public Participation

1. Public participation is required for all major RSWMP amendments and minor amendments described above.

2. HRPCD Staff will arrange for publication of a required public notice describing the proposed amendment, the commencement of a public comment period (30 days, at minimum), and date, time and location of a required public hearing.

3. Publication of the public notice will occur not less than fifteen (15) days prior to the scheduled hearing.

4. HRPDC staff will arrange for and conduct a public hearing not less than fifteen (15) days prior to the end of the public comment period, nor less that fifteen (15) days following the publication of notice of said hearing. The public hearing will most likely be part of a normally scheduled SPSA Board of Directors meeting.

5. HRPCD staff will ensure the text of the proposed amendment is available for review during the public comment period. The proposed amendment will be placed on HRPDC's -website at www.hrpdc.org. Hard copies of the amendment will also be provided upon written request.

D. VDEQ Approval

1. Following the public comment period, HRPDC staff will forward the revised RSWMP to VDEQ. Minor amendments will be submitted to VDEQ for informational purposes. Major amendments will be submitted to VDEQ for its approval.

2. In either case, VDEQ must acknowledge receipt of and/or approve the amendment prior to HRPDC finalizing the amended RSWMP.

3. Amending the RSWMP does not remove the requirement for the applicant to obtain necessary environmental permits to construct and operate the solid waste facility in accordance with local and state regulations.

4. In the event a requested amendment is deemed to not be in keeping with the strategy outlined in the RSWMP or Solid Waste Planning Regulations, HRPDC will so advise the VDEQ, and the applicant.

11.3 GUIDANCE FOR DEMONSTRATING NEED OF A NEW OR EXPANDED SOLID WASTE MANAGEMENT FACILITY

Each application requesting amendment to the RSWMP to include a new facility not detailed in the Plan shall be accompanied by a demonstration of need for the facility in the planning region, which shall be of the form and content as the HRPDC may prescribe. It is the applicant's responsibility to provide reasonable and detailed information sufficient for this determination. Sources of data and information used to demonstrate need shall be cited.

A. The demonstration of need shall be specific as to the types of waste and/or recyclable materials to be managed and shall include, but not be limited to:

1. Documentation of the available capacity at existing facilities in the planning region to be served by the facility;

2. Documentation of the current volume of waste/recyclables generated in the region to be served by the facility and the volume of waste/recyclables reasonably expected to be generated in the area to be served over the next 20 years;

3. A description of additional factors, such as physical limitations on the transportation of materials or the existence of additional capacity outside the region to be served which may satisfied the projected need.

B. The following factors will be considered in evaluating the need for the proposed facility:

1. An approximate service area for the proposed facility which takes into account the economics of collection, processing, transportation, treatment, storage and/or disposal;

2. The quantity of waste/recyclables generated within the planning area suitable for treatment, processing, storage and/or disposal at the proposed facility;

3. The design capacity of existing facilities located within the planning area;

4. The extent to which the proposed facility is needed to replace other facilities, if the need for a proposed facility cannot be established under the above paragraphs.

C. If it is determined that a proposed facility is inconsistent with or contradictory to the above paragraphs or otherwise set forth in the RSWMP, the application to amend the RSWMP will be denied.